

R18-9-E302. 4.02 GENERAL PERMIT: SEPTIC TANK WITH DISPOSAL BY TRENCH, BED, CHAMBER TECHNOLOGY, OR SEEPAGE PIT, LESS THAN 3000 GALLONS PER DAY DESIGN FLOW

- A. A 4.02 General Permit allows for the construction and operation of a system with less than 3000 gallons per day design flow consisting of a septic tank dispensing wastewater to an approved means of disposal described in this Section. Only gravity flow of wastewater from the septic tank to the disposal works is authorized by this general permit.
1. The standard septic tank and disposal works design specified in the 4.02 General Permit serves sites where no site limitations are identified by the site investigation conducted under R18-9-A310.
 2. If site conditions allow, this general permit authorizes the discharge of wastewater from a septic tank meeting the requirements of R18-9-A314 to one of the following disposal works:
 - a. Trench,
 - b. Bed,
 - c. Chamber technology, or
 - d. Seepage pit.
- B. Performance. An applicant shall design a system consisting of a septic tank and one of the disposal works listed in subsection (A)(2) so that treated wastewater released to the native soil meets the following criteria:
1. TSS of 75 milligrams per liter, 30-day arithmetic mean;
 2. BOD₅ of 150 milligrams per liter, 30-day arithmetic mean;
 3. Total nitrogen (as nitrogen) of 53 milligrams per liter, five-month arithmetic mean; and
 4. Total coliform level of 100,000,000 (Log₁₀ 8) colony forming units per 100 milliliters, 95th percentile.
- C. Design and installation requirements.
1. General provisions. In addition to the applicable requirements in R18-9-A312, the applicant shall:
 - a. Ensure that the septic tank meets the requirements specified in R18-9-A314;
 - b. Before placing aggregate or disposal pipe in a prepared excavation, remove all smeared or compacted surfaces from trenches by raking to a depth of 1 inch and removing loose material. The applicant shall:
 - i. Place aggregate in the trench to the depth and grade specified in subsection (C)(2);
 - ii. Place the drain pipe on aggregate and cover it with aggregate to the minimum depth specified in subsection (C)(2); and
 - iii. Cover the aggregate with landscape filter material, geotextile, or similar porous material to prevent filling of voids with earth backfill;
 - c. Use a grade board stake placed in the trench to the depth of the aggregate if the disposal pipe is constructed of drain tile or flexible pipe that will not maintain alignment without continuous support;
 - d. Disposal pipe. If two or more disposal pipes are installed, install a distribution box approved by the Department of sufficient size to receive all lateral lines and flows at the head of each disposal works and:
 - i. Ensure that the inverts of all outlets are level and the invert of the inlet is at least 1 inch above the outlets;
 - ii. Design distribution boxes to ensure equal flow and install the boxes on a stable level surface such as a concrete slab or native or compacted soil; and
 - iii. Protect concrete distribution boxes from corrosion by coating them with an appropriate bituminous coating, constructing the boxes with concrete that has a 15 to 18 percent fly ash content, or by using other equivalent means;
 - e. Construct all lateral pipes running from a distribution box to the disposal works with watertight joints and ensure that multiple disposal laterals, wherever practical, are of uniform length;
 - f. Lay pipe connections between the septic tank and a distribution box on natural ground or compact fill and construct the pipe connections with watertight joints;
 - g. Construct steps within distribution line trenches or beds, if necessary, to maintain a level disposal pipe on sloping ground. The applicant shall construct the lines between each horizontal section with watertight joints and install them on natural or unfilled ground; and
 - h. Ensure that a disposal works consisting of trenches, beds, chamber technology, or seepage pits is not paved over or covered by concrete or any material that can reduce or inhibit possible evaporation of wastewater through the soil to the land surface or oxygen transport to the soil absorption surfaces.
 2. Trenches.
 - a. The applicant shall calculate the trench absorption area as the total of the trench bottom area and the sum of both trench sidewall areas to a maximum depth of 48 inches below the bottom of the disposal pipe.
 - b. The applicant shall ensure that trench bottoms and disposal pipe are level. The applicant shall calculate trench sizing from the soil absorption rate specified under R18-9-A312(D) and the design flow established in R18-9-A312(B).
 - c. The following design criteria for trenches apply:

Trenches	Minimum	Maximum
1. Number of trenches	1 (2 are recommended)	No Maximum

2. Length of trench ¹	—	100 feet
3. Bottom width of trench	12 inches	36 inches
4. Trench absorption area (sq. ft. of absorption area per linear foot of trench)	No Minimum	11 sq. ft.
5. Depth of cover over aggregate surrounding disposal pipe	9 inches	24 inches ²
6. Thickness of aggregate material over disposal pipe	2 inches	2 inches
7. Thickness of aggregate material under disposal pipe	12 inches	No Maximum
8. Slope of disposal pipe	Level	Level
9. Disposal pipe diameter	3 inches	4 inches
10. Spacing of trenches (measured between nearest sidewalls)	2 times effective depth ³ or five feet, whichever is greater	No Maximum

Notes:

1. If unequal trench lengths are used, proportional distribution of wastewater is required.
2. For more than 24 inches, Standard Dimensional Ratio 35 or equivalent strength pipe is required.
3. The effective depth is the distance between the bottom of the disposal pipe and the bottom of the trench.

- d. The applicant may substitute clean, durable, crushed, and washed recycled concrete for aggregate if noted in design documents and the trench absorption area calculation excludes the trench bottom.
3. Beds. An applicant shall:
 - a. If a bed is installed, use the soil absorption rate specified in R18-9-A312(D) for “SAR, Bed. The applicant may, in computing the bed bottom absorption area, include the bed bottom and the perimeter sidewall area not more than 36 inches below the disposal pipe;
 - b. Comply with the following design criteria for beds:

Gravity Beds	Minimum	Maximum
1. Number of disposal pipes	2	No Maximum
2. Length of bed	No Minimum	100 feet
3. Distance between disposal pipes	4 feet	6 feet
4. Spacing of beds measured between nearest sidewalls	2 times effective depth ¹ or 5 feet, whichever is greater	No Maximum
5. Width of bed	10 feet	12 feet
6. Distance from disposal pipe to sidewall	3 feet	3 feet
7. Depth of cover over disposal pipe	9 inches	14 inches
8. Thickness of aggregate material under disposal pipe	12 inches	No Maximum
9. Thickness of aggregate material over disposal pipe	2 inches	2 inches
10. Slope of disposal pipe	Level	Level
11. Disposal pipe diameter	3 inches	4 inches

Note:

1. The effective depth is the distance between the bottom of the disposal pipe and the bottom of the bed.
4. Chamber technology. An applicant shall:
 - a. Calculate an effective chamber absorption area to size the disposal works area and determine the number of chambers needed. The effective absorption area of each chamber is calculated as follows:

$$A = (1.8 \times B \times L) + (2 \times V \times L)$$

- i. “A” is the effective absorption area of each chamber,
 - ii. “B” is the exterior width of the bottom of the chamber,
 - iii. “V” is the vertical height of the louvered sidewall of the chamber, and
 - iv. “L” is the length of the chamber;
 - b. Calculate the disposal works size and number of chambers from the effective absorption area of each chamber and the soil absorption rates specified in R18-9-A312(D);
 - c. Ensure that the sidewall of the chamber provides at least 35 percent open area for sidewall credit and that the design and construction minimizes the movement of fines into the chamber area. The applicant shall not use filter fabric or geotextile against the sidewall openings.
- 5. Seepage pits. If allowed by R18-9-A311(B)(1), the applicant shall:
 - a. Design a seepage pit to comply with R18-9-A312(E)(1) for minimum vertical separation distance;
 - b. Ensure that multiple seepage pit installations are served through a distribution box approved by the Department or connected in series with a watertight connection laid on undisturbed or compacted soil. The applicant shall ensure that the outlet from the pit has a sanitary tee with the vertical leg extending at least 12 inches below the inlet;
 - c. Ensure that each seepage pit is circular and has an excavated diameter of 4 to 6 feet. If multiple seepage pits are installed, ensure that the minimum spacing between seepage pit sidewalls is 12 feet or three times the diameter of the seepage pit, whichever is greater. The applicant may use the alternative design procedure specified in R18-9-A312(G) for a proposed seepage pit more than 6 feet in diameter;
 - d. For a gravel filled seepage pit, backfill the entire pit with aggregate. The applicant shall ensure that each pit has a breather conductor pipe that consists of a perforated pipe at least 4 inches in diameter, placed vertically within the backfill of the pit. The pipe shall extend from the bottom of the pit to within 12 inches below ground level;
 - e. For a lined, hollow seepage pit, lay a concrete liner or a liner of a different protective material in the pit on a firm foundation and fill excavation voids behind the liner with at least 9 inches of aggregate;
 - f. For the cover of a lined seepage pit, use an approved one or two piece reinforced concrete slab with a minimum compressive strength of 2500 pounds per square inch. The applicant shall ensure that the cover:
 - i. Is at least 5 inches thick and designed to support an earth load of at least 400 pounds per square foot;
 - ii. Has a 12-inch square or diameter minimum access hole with a plug or cap that is coated on the underside with an protective bituminous seal, constructed of concrete with 15 percent to 18 percent fly ash content, or made of other nonpermeable protective material; and
 - iii. Has a 4-inch or larger inspection pipe placed vertically not more than 6 inches below ground level;
 - g. Ensure that the top of the seepage pit cover is 4 to 18 inches below the surface of the ground;
 - h. Install a vented inlet fitting in every seepage pit to prevent flows into the seepage pit from damaging the sidewall. An applicant may use a 1/4 bend fitting placed through an opening in the top of the slab cover if a one or two piece concrete slab cover inlet is used;
 - i. Bore seepage pits five feet deeper than the proposed pit depth to verify underlying soil characteristics and backfill the five feet of overdrill with low permeability drill cuttings or other suitable material;
 - j. Backfill seepage pits that terminate in gravelly, coarse sand zones five feet above the beginning of the zone with low permeability drill cuttings or other suitable material;
 - k. Determine the minimum sidewall area for a seepage pit from the design flow and the soil absorption rate derived from the testing procedure described in R18-9-A310(G). The effective absorption surface for a seepage pit is the sidewall area only. The sidewall area is calculated using the following formula:

$$A = 3.14 \times D \times H$$
 - i. “A” is the minimum sidewall area in square feet needed for the design flow and soil absorption rate for the installation,
 - ii. “D” is the diameter of the proposed seepage pit in feet, and
 - iii. “H” is the vertical height in feet in the seepage pit through which wastewater infiltrates native soil. The applicant shall ensure that H is at least 10 feet for any seepage pit.
- D. Operation and maintenance. The permittee shall follow the applicable operation and maintenance requirements in R18-9-A313.

R18-9-E303. 4.03 GENERAL PERMIT: COMPOSTING TOILET, LESS THAN 3000 GALLONS PER DAY DESIGN FLOW

- A. A 4.03 General Permit allows for the use of a composting toilet with less than 3000 gallons per day design flow.
 - 1. Definition. For purposes of this Section, “composting toilet” means a manufactured turnkey or kit form treatment technology that receives human waste from a waterless toilet directly into an aerobic composting chamber where dehydration and biological activity reduce the waste volume and the content of nutrients and harmful microorganisms to an appropriate level for later disposal at the site or by other means.
 - 2. An applicant may use a composting toilet if:

- a. Limited water availability prevents use of other types of on-site wastewater treatment facilities;
 - b. Environmental constraints prevent the discharge of wastewater or nutrients to a sensitive area;
 - c. Inadequate space prevents use of other systems;
 - d. Severe site limitations exist that make other forms of treatment or disposal unacceptable; or
 - e. The applicant desires maximum water conservation.
 3. A permittee may use a composting toilet only if:
 - a. Wastewater is managed as provided in this Section and, if gray water is separated and reused, the gray water reuse complies with 18 A.A.C. 9, Article 7; and
 - b. Soil conditions support subsurface disposal of all wastewater sources.
- B. Restrictions.
 1. A permittee shall ensure that no more than 50 persons per day use the composting toilet.
 2. A composting toilet shall only receive human excrement unless the manufacturer's specifications allow the deposit of kitchen or other wastes into the toilet.
- C. Performance. An applicant shall ensure that:
 1. The composting toilet provides containment to prevent the discharge of toilet contents to the native soil except leachate, which may drain to the wastewater disposal works described in subsection (F);
 2. The composting toilet limits access by vectors to the contained waste; and
 3. Wastewater is disposed into the subsurface to prevent any wastewater from surfacing.
- D. Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge requirements specified in R18-9-A301(B) and R18-9-A309(B), the applicant shall submit the following information:
 1. Composting toilet.
 - a. The name and address of the composting toilet system manufacturer;
 - b. A copy of the manufacturer's warranty, and the specifications for installation operation, and maintenance;
 - c. The product model number;
 - d. Composting rate, capacity, and waste accumulation volume calculations;
 - e. Documentation of listing by a national listing organization indicating that the composting toilet meets the stated manufacturer's specifications for loading, treatment performance, and operation, unless the composting toilet is listed under R18-9-A309(E) or is a component of a reference design approved by the Department;
 - f. The method of vector control;
 - g. The planned method and frequency for disposing the composted human excrement residue; and
 - h. The planned method for disposing of the drainage from the composting unit; and
 2. Wastewater.
 - a. The number of bedrooms in the dwelling or persons served on a daily basis, as applicable, and the corresponding design flow of the disposal works for the wastewater;
 - b. The results from soil evaluation or percolation testing that adequately characterize the soils into which the wastewater will be dispersed and the locations of soil evaluation and percolation testing on the site plan; and
 - c. The design for the disposal works in subsection (F), including the location of the interceptor, the location and configuration of the trench or bed used for wastewater dispersal, the location of connecting wastewater pipelines, and the location of the reserve area.
- E. Design requirements for a composting toilet. An applicant shall ensure that:
 1. The composting chamber is watertight, constructed of solid durable materials not subject to excessive corrosion or decay, and is constructed to exclude access by vectors;
 2. The composting chamber has airtight seals to prevent odor or toxic gas from escaping into the building. The system may be vented to the outside;
 3. The capacity of the chamber and rate of composting are calculated based on:
 - a. The lowest monthly average chamber temperature; or
 - b. The yearly average chamber temperature, if the composting toilet is designed to compost on a yearly cycle or longer; and
 4. The composting system provides adequate storage of all waste produced during the months when the average temperature is below 55°F, unless a temperature control device is installed to increase the composting rate and reduce waste volume.
- F. Design requirements for the disposal works.
 1. Interceptor. An applicant shall ensure that the design complies with the following:
 - a. Wastewater passes into an interceptor before it is conducted to the subsurface for dispersal;
 - b. The interceptor is designed to remove grease, oil, fibers, and solids to ensure long-term performance of the trench or bed used for subsurface dispersal;
 - c. The interceptor is covered to restrict access and eliminate habitat for mosquitoes and other vectors; and
 - d. Minimum interceptor size is based on design flow.
 - i. For a dwelling, the following apply:

No. of Bedrooms	Design Flow (gallons per day)	Minimum Interceptor Size (gallons)	
		Kitchen Wastewater Only (All gray water sources are collected and reused)	Combined Non-Toilet Wastewater (Gray water is not separated and reused)
1 (7 fixture units or less)	90	42	200
1-2 (greater than 7 fixture units)	180	84	400
3	270	125	600
4	330	150	700
5	380	175	800
6	420	200	900
7	460	225	1000

- ii. For other than a dwelling, minimum interceptor size in gallons is 2.1 times the design flow from Table 1, Unit Design Flows.
 2. Dispersal of wastewater. An applicant shall ensure that the design complies with the following:
 - a. A trench or bed is used to disperse the wastewater into the subsurface;
 - b. Sizing of the trench or bed is based on the design flow of wastewater as determined in subsection (F)(1)(d) and an SAR determined under R18-9-A312(D);
 - c. The minimum vertical separation from the bottom of the trench or bed to a limiting subsurface condition is at least 5 feet; and
 - d. Other aspects of trench or bed design follow R18-9-E302, as applicable.
 3. Setback distances. Setback distances are no less than 1/4 of the setback distances specified in R18-9-A312(C), but not less than 5 feet, except the setback distance from wells is 100 feet.
- G. Operation and maintenance requirements. A permittee shall:
 1. Composting toilet.
 - a. Provide adequate mixing, ventilation, temperature control, moisture, and bulk to reduce fire hazard and prevent anaerobic conditions;
 - b. Follow manufacturer's specifications for addition of any organic bulking agent to control liquid drainage, promote aeration, or provide additional carbon;
 - c. Follow the manufacturer's specifications for operation and maintenance regarding movement of material within the composting chamber;
 - d. If batch system containers are mounted on a carousel, place a new container in the toilet area if the previous one is full;
 - e. Ensure that only human waste, paper approved for septic tank use, and the amount of bulking material required for proper maintenance is introduced to the composting chamber. The permittee shall remove all other materials or trash. If allowed by the manufacturer's specifications, the permittee may add other nonliquid compostable food preparation residues to the toilet;
 - f. Ensure that any liquid end product is:
 - i. Sprayed back onto the composting waste material;
 - ii. Removed by a person who licensed a vehicle under 18 A.A.C. 13, Article 11; or
 - iii. Is drained to the interceptor described in subsection (F);
 - g. Remove and dispose of composted waste as necessary, using a person who licensed a vehicle under 18 A.A.C. 13, Article 11 if the waste is not placed in a disposal area for burial or used on-site as mulch;
 - h. Before ending use for an extended period take measures to ensure that moisture is maintained to sustain bacterial activity and free liquids in the chamber do not freeze; and
 - i. After an extended period of non-use, empty the composting chamber of solid end product and inspect all mechanical components to verify that the mechanical components are operating as designed;
 2. Wastewater Disposal Works.
 - a. Ensure that the interceptor is maintained regularly according to manufacturer's instructions to prevent grease and solid wastes from impairing performance of the trench or bed used for dispersal of wastewater, and
 - b. Protect the area of the trench or bed from soil compaction or other activity that will impair dispersal performance.
- H. Reference design.
 1. An applicant may use a composting toilet that achieves the performance requirements in subsection (C) by following a reference design on file with the Department.
 2. The applicant shall file a form provided by the Department for supplemental information about the proposed

system with the applicant's submittal of the Notice of Intent to Discharge.

R18-9-E304. 4.04 GENERAL PERMIT: PRESSURE DISTRIBUTION SYSTEM, LESS THAN 3000 GALLONS PER DAY DESIGN FLOW

- A. A 4.04 General Permit allows for the use of a pressurized distribution of wastewater system with a design flow less than 3000 gallons per day that treats wastewater to a level equal to or better than that specified in R18-9-E302(B).
 1. Definition. For purposes of this Section, a "pressure distribution system" means a tank, pump, controls, and piping that conducts wastewater under pressure in controlled amounts and intervals to a bed or trench or other means of distribution authorized by a general permit for an on-site wastewater treatment facility.
 2. An applicant may use a pressure distribution system if a gravity flow system is unsuitable, inadequate, unfeasible, or cost prohibitive because of site limitations or other conditions, or if needed to optimally distribute wastewater.
- B. Performance. An applicant shall ensure that a pressure distribution system:
 1. Disperses wastewater so that:
 - a. Loading rates are optimized for the intended purpose, and
 - b. The wastewater is delivered under pressure and evenly distributed within the disposal works, and
 2. Prevents ponding on the land surface.
- C. Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge requirements specified in R18-9-A301(B) and R18-9-A309(B), the applicant shall submit:
 1. A copy of operation, maintenance, and warranty materials for the principal components; and
 2. A copy of dosing specifications, including pump curves, dispersing component details, and float control settings.
- D. Design requirements.
 1. Pumps. An applicant shall ensure pumps used in the on-site wastewater treatment facility:
 - a. Are rated for wastewater service by the manufacturer and certified by Underwriters Laboratories;
 - b. Achieve the minimum design flow rate and total dynamic head requirements for the particular site; and
 - c. Incorporate a quick disconnect using compression-type unions for pressure connections. The applicant shall ensure that:
 - i. Quick-disconnects are accessible in the pressure piping, and
 - ii. A pump has adequate lift attachments for removal and replacement of the pump and switch assembly without entering the dosing tank or process chamber.
 2. Switches, controls, alarms, timers, and electrical components. An applicant shall ensure that:
 - a. Switches and controls accommodate the minimum and maximum dose capacities of the distribution network design. The applicant shall not use pressure diaphragm level control switches;
 - b. Fail-safe controls that can be tested in the field are used to prevent discharge of inadequately treated wastewater. The applicant shall include counters or flow meters if critical to control functions, such as timed dosing;
 - c. Control panels and alarms:
 - i. Are mounted in an exterior location visible from the dwelling,
 - ii. Provide manual pump switch and alarm test features, and
 - iii. Include written instructions covering standard operation and alarm events;
 - d. Audible and visible alarms are used for all critical control functions, such as pump failures, treatment failures, and excess flows. The applicant shall ensure that:
 - i. The visual portion of the signal is conspicuous from a distance 50 feet from the system and its appurtenances;
 - ii. The audible portion of the signal is between 70 and 75 db at 5 feet and is discernable from a distance of 50 feet from the system and its appurtenances; and
 - iii. Alarms, test features, and controls are on a non-dedicated electrical circuit associated with a frequently used household lighting fixture and separate from the dedicated circuit for the pump;
 - e. All electrical wiring complies with the National Electrical Code, 2005 Edition, published by the National Fire Protection Association. This material is incorporated by reference and does not include any later amendments or editions of the incorporated material. Copies of the incorporated material are available for inspection at the Arizona Department of Environmental Quality, 1110 W. Washington, Phoenix, AZ 85007 or may be obtained from the National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101. The applicant shall ensure that:
 - i. Connections are made using National Electrical Manufacturers Association (NEMA) 4x junction boxes certified by Underwriters Laboratories; and
 - ii. All controls are in NEMA 3r, 4, or 4x enclosures for outdoor use.
 3. Dosing tanks and wastewater distribution components.
 - a. An applicant shall:
 - i. Design dosing tanks to withstand anticipated internal and external loads under full and empty conditions, and design concrete tanks to meet the "Standard Specification for Precast Concrete Water and Wastewater Structures, C913-02 (2002)," published by the American Society for Testing and Materials. This material is incorporated by reference and does not include any later

- amendments or editions of the incorporated material. Copies of the incorporated material are available for inspection at the Arizona Department of Environmental Quality, 1110 W. Washington, Phoenix, AZ 85007 or may be obtained from the American Society for Testing and Materials International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959;
- ii. Design dosing tanks to be easily accessible and have secured covers;
 - iii. Install risers to provide access to the inlet and outlet of the tank and to service internal components;
 - iv. Ensure that the volume of the dosing tank accommodates bottom depth below maximum drawdown, maximum design dose, including any drainback, volume to high water alarm, and a reserve volume above the high water alarm level that is not less than the daily design flow volume. If the tank is time dosed, the applicant shall ensure that the combined surge capacity and reserve volume above the high water alarm is not less than the daily design flow volume;
 - v. Ensure that dosing tanks are watertight and anti-buoyant;
 - vi. Design the wastewater distribution components to withstand system pumping pressures;
 - vii. Design the wastewater distribution system to allow air to purge from the system;
 - viii. Design pressure piping to minimize freezing during cold weather;
 - ix. Ensure that the end of each wastewater distribution line is accessible for maintenance;
 - x. Ensure that orifices emit the design discharge rate uniformly throughout the wastewater distribution system; and
 - xi. Design orifices using orifice shields to provide proper distribution of wastewater to the receiving medium.
- b. An applicant may use a septic tank second compartment or a second septic tank in series as a dosing tank if all dosing tank requirements of this Section are met and a screened vault is used instead of the septic tank effluent filter.
4. Design SAR. If the site conditions of the property for the on-site wastewater treatment facility do not require pressure distribution, but an applicant chooses to use pressure distribution, the applicant shall use a design SAR for the absorption surfaces in the disposal works that is not more than 1.10 times the adjusted SAR determined in R18-9-A312(D).
- E. Additional Discharge Authorization requirements. An applicant shall obtain copies of instructions for the critical controls of the system from the person who installed the pressure distribution system. The applicant shall submit one copy of the instructions with the information required in subsection (C).
- F. Operation and maintenance requirements. In addition to the applicable requirements specified in R18-9-A313(B), a permittee shall ensure that:
1. The operation and maintenance manual for the on-site wastewater treatment facility that supplies the wastewater to the pressure distribution system specifies inspection and maintenance needed for the following items:
 - a. Sludge level in the bottom of the treatment and dosing tanks,
 - b. Watertightness,
 - c. Condition of electrical and mechanical components, and
 - d. Piping and other components functioning within design limits;
 2. All critical control functions are specified in the operation and maintenance manual for testing to demonstrate compliance with design specifications, including:
 - a. Alarms, test features, and controls;
 - b. Float switch level settings;
 - c. Dose rate, volume, and frequency, if applicable;
 - d. Distal pressure or squirt height, if applicable; and
 - e. Voltage test on pumps, motors, and controls, as applicable;
 3. The finished grade is observed and maintained for proper surface drainage. The applicant shall observe the levelness of the tank for differential settling. If there is settling, the applicant shall grade the facility to maintain surface drainage.

R18-9-E305. 4.05 GENERAL PERMIT: GRAVELLESS TRENCH, LESS THAN 3000 GALLONS PER DAY DESIGN FLOW

- A. A 4.05 General Permit allows for the use of a gravelless trench with less than 3000 gallons per day design flow receiving wastewater treated to a level equal to or better than that specified in R18-9-E302(B).
1. Definition. For purposes of this Section, a “gravelless trench” means a disposal technology characterized by installation of a proprietary pipe and geocomposite or other substitute media into native soil instead of the distribution pipe and aggregate fill used in a trench allowed in R18-9-E302.
 2. A permittee may use a gravelless trench if suitable gravel or volcanic rock aggregate is unavailable, excessively expensive, or if adverse site conditions make movement of gravel difficult, damaging, or time consuming.
- B. Performance. An applicant shall design a gravelless trench so that treated wastewater released to the native soil meets the following criteria:
1. TSS of 75 milligrams per liter, 30-day arithmetic mean;

2. BOD₅ of 150 milligrams per liter, 30-day arithmetic mean;
 3. Total nitrogen (as nitrogen) of 53 milligrams per liter, 5-month arithmetic mean; and
 4. Total coliform level of 100,000,000 (Log₁₀ 8) colony forming units per 100 milliliters, 95th percentile.
- C. Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge requirements specified in R18-9-A301(B) and R18-9-A309(B), an applicant shall submit the following:
1. The soil absorption area that would be required if a conventional disposal trench filled with aggregate was used at the site,
 2. The configuration and size of the proposed gravelless disposal works, and
 3. The manufacturer's installation instructions and warranty of performance for absorbing wastewater into the native soil.
- D. Design requirements. In addition to the applicable requirements in R18-9-A312, an applicant shall:
1. Ensure that the top of the gravelless disposal pipe or similar disposal mechanism is at least 6 inches below the surface of the native soil and 12 to 36 inches below finished grade if approved fill is placed on top of the installation;
 2. Calculate the infiltration surface as follows:
 - a. For 8-inch diameter pipe, 2 square feet of absorption area is allowed per linear foot;
 - b. For 10-inch diameter pipe, 3 square feet of absorption area is allowed per linear foot;
 - c. For bundles of two pipes of the same diameter, the absorption area is calculated as 1.67 times the absorption area of one pipe; and
 - d. For bundles of three pipes of the same diameter, the absorption area is calculated as 2.00 times the absorption area of one pipe;
 3. Use a pressure distribution system meeting the requirements of R18-9-E304 in medium sand, coarse sand, and coarser soils; and
 4. Construct the drainfield of material that will not decay, deteriorate, or leach chemicals or byproducts if exposed to sewage or the subsurface soil environment.
- E. Installation requirements. In addition to the applicable requirements in R18-9-A313(A), an applicant shall:
1. Install the gravelless pipe material according to manufacturer's instructions if the instructions are consistent with this Chapter,
 2. Ensure that the installed disposal system can withstand the physical disturbance of backfilling and the load of any soil cover above natural grade placed over the installation, and
 3. Shape any backfill and soil cover in the area of installation to prevent settlement and ponding of rainfall for the life of the disposal works.
- F. Operation and maintenance requirements. In addition to the applicable requirements in R18-9-A313(B), the permittee shall inspect the finished grade in the vicinity of the gravelless disposal works for maintenance of proper drainage and protection from damaging loads.

R18-9-E306. 4.06 GENERAL PERMIT: NATURAL SEAL EVAPOTRANSPIRATION BED, LESS THAN 3000 GALLONS PER DAY DESIGN FLOW

- A. A 4.06 General Permit allows for the use of a natural seal evapotranspiration bed with less than 3000 gallons per day design flow receiving wastewater treated to a level equal to or better than that specified in R18-9-E302(B).
1. Definition. For purposes of this Section, a "natural seal evapotranspiration bed" means a disposal technology characterized by a bed of sand or other media with an internal wastewater distribution system, contained on the bottom and sidewalls by an engineered liner consisting of natural soil and clay materials.
 2. An applicant may use a natural seal evapotranspiration bed if site conditions restrict soil infiltration or require reduction of the volume of wastewater discharged to the native soil underlying the natural seal liner.
- B. Restrictions. Unless a person provides design documentation to show that a natural seal evapotranspiration bed will properly function, the person shall not install this technology if:
1. Average minimum temperature in any month is 20°F or less,
 2. Over 1/3 of the average annual precipitation falls in a 30-day period, or
 3. Design flow exceeds net evaporation.
- C. Performance. An applicant shall ensure that a natural seal evapotranspiration bed:
1. Minimizes discharge to the native soil through the natural seal liner,
 2. Maximizes wastewater disposed to the atmosphere by evapotranspiration, and
 3. Prevents ponding of wastewater on the bed surface and maintains an interval of unsaturated media directly beneath the bed surface.
- D. Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge requirements in R18-9-A301(B) and R18-9-A309(B), an applicant shall submit:
1. Capillary rise potential test results for the media used to fill the evapotranspiration bed, unless sand meeting a D₅₀ of 0.1 millimeter (50 percent by weight of grains equal to or smaller than 0.1 millimeter) is used; and
 2. Water mass balance calculations used to size the evapotranspiration bed.
- E. Design requirements. An applicant shall:
1. Ensure that the evapotranspiration bed is from 18 to 36 inches deep and shall calculate the bed design based on the

- capillary rise of the bed media, following the “Standard Test Method for Capillary-Moisture Relationships for Coarse- and Medium-Textured Soils by Porous-Plate Apparatus, D2325-68 (2000),” incorporated by reference in R18-9-E307(E), and the anticipated maximum frost depth;
2. Ensure the media is sand or other durable material;
3. Base design area calculations on a water mass balance for the winter months and the design seepage rate;
4. Ensure that the natural seal liner is a durable, low-hydraulic conductivity liner and is accompanied by the liner performance specification and calculations for bottom and sidewall seepage rate;
5. If a surfacing layer is used, use topsoil, dark cinders, decomposed granite, or similar landscaping material placed to a maximum depth of 2 inches and ensure that:
 - a. If topsoil is used as a surfacing layer for growth of landscape plants:
 - i. The topsoil is a fertile, friable soil obtained from well-drained arable land;
 - ii. The topsoil is free of nut grass, refuse, roots, heavy clay, clods, noxious weeds, or any other material toxic to plant growth;
 - iii. The pH of the topsoil is between 5.5 and 8.0;
 - iv. The plasticity index of the topsoil is between 3 and 15; and
 - v. The topsoil contains approximately 1-1/2 percent organic matter, by dry weight, either natural or added;
 - b. If landscaping material other than topsoil is used as a surfacing layer, the material meets the following gradation:

Sieve Size	Percent Passing
1”	100
1/2”	95-100
No. 4	90-100
No. 10	70-100
No. 200	15-70

6. Use shallow-rooted, non-invasive, salt- and drought-tolerant evergreens if vegetation is planted on the evapotranspiration bed;
 7. Install at least two observation ports to determine the level of the liquid surface of wastewater within the evapotranspiration bed;
 8. Design the bed to pump out the saturated zone if accumulated salts or a similar condition impairs bed performance; and
 9. Instead of the minimum vertical separation required under R18-9-A312(E), ensure that the minimum vertical separation from the bottom of the natural seal evapotranspiration bed liner to the seasonal high water table is at least 12 inches.
- F. Installation requirements. In addition to the applicable requirements in R18-9-A313(A), an applicant shall ensure that:
1. The liner covers the bottom and all sidewalls of the bed and is installed on a stable base according to the manufacturer’s installation specifications;
 2. If the inlet pipe passes through the liner, the joint is tightly sealed to minimize leakage during the operational life of the facility;
 3. The liner is leak tested under the supervision of an Arizona-registered professional engineer to confirm the design leakage rate; and
 4. A 2- to 4-inch layer of 1/2- to 1-inch gravel or crushed stone is placed around the distribution pipes within the bed. The applicant shall ensure that the filter cloth is placed on top of the gravel or crushed stone to prevent sand from settling into the gravel or crushed stone.
- G. Additional Discharge Authorization requirements. An applicant shall submit the satisfactory results of the leakage test required under subsection (F)(3) to the Department before the Department issues the Discharge Authorization.
- H. Operation and maintenance requirements. In addition to the applicable requirements in R18-9-A313(B), the permittee shall:
1. Not allow irrigation of an evapotranspiration bed, and
 2. Protect the bed from vehicle loads and other damaging activities.

R18-9-E307. 4.07 GENERAL PERMIT: LINED EVAPOTRANSPIRATION BED, LESS THAN 3000 GALLONS PER DAY DESIGN FLOW

- A. A 4.07 General Permit allows for the use of a lined evapotranspiration bed receiving wastewater treated to a level equal to or better than that specified in R18-9-E302(B).
1. Definition. For purposes of this Section, a “lined evapotranspiration bed” means a disposal technology characterized by a bed of sand or other media with an internal wastewater distribution system contained on the bottom and sidewalls by an impervious synthetic liner.
 2. An applicant may use a lined evapotranspiration bed if site conditions restrict soil infiltration or require reduction or elimination of the volume of wastewater or nitrogen load discharged to the native soil.

3. Provision of a reserve area is not required for a lined evapotranspiration bed.
- B. Restrictions. Unless a person provides design documentation to show that a lined evapotranspiration bed will properly function, the person shall not install this technology if:
 1. Average minimum temperature in any month is 20°F or less,
 2. Over 1/3 of average annual precipitation falls in a 30-day period, or
 3. Design flow exceeds net evaporation.
- C. Performance. An applicant shall ensure that a lined evapotranspiration bed:
 1. Prevents discharge to the native soil by a synthetic liner,
 2. Attains full disposal of wastewater to the atmosphere by evapotranspiration, and
 3. Prevents ponding of wastewater on the bed surface and maintains an interval of unsaturated media directly beneath the bed surface.
- D. Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge requirements specified in R18-9-A301(B) and R18-9-A309(B), an applicant shall submit:
 1. Capillary rise potential test results for the media used to fill the evapotranspiration bed, unless sand meeting a D₅₀ of 0.1 millimeter (50 percent by weight of grains equal to or smaller than 0.1 millimeter in size) is used; and
 2. Water mass balance calculations used to size the evapotranspiration bed.
- E. Design requirements. In addition to the applicable requirements in R18-9-A312, an applicant shall:
 1. Ensure that the evapotranspiration bed is from 18 to 36 inches deep and calculate the bed design on the basis of the capillary rise of the bed media, according to the "Standard Test Method for Capillary-Moisture Relationships for Coarse- and Medium-Textured Soils by Porous-Plate Apparatus, D2325-68 (2003)," published by the American Society for Testing and Materials and the anticipated maximum frost depth. This material is incorporated by reference and does not include any later amendments or editions of the incorporated material. Copies of the incorporated material are available for inspection at the Arizona Department of Environmental Quality, 1110 W. Washington, Phoenix, AZ 85007 or may be obtained from the American Society for Testing and Materials International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959;
 2. Ensure the media is sand or other durable material;
 3. Base design area calculations on a water mass balance for the winter months;
 4. Ensure that the evapotranspiration bed liner is a durable, low hydraulic conductivity synthetic liner that has a calculated bottom area and sidewall seepage rate of less than 550 gallons per acre per day;
 5. If a surfacing layer is used, use topsoil, dark cinders, decomposed granite, or similar landscaping material placed to a maximum depth of 2 inches. The applicant shall ensure that:
 - a. If topsoil is used as a surfacing layer for growth of landscape plants:
 - i. The topsoil is a fertile, friable soil obtained from well-drained arable land;
 - ii. The topsoil is free of nut grass, refuse, roots, heavy clay, clods, noxious weeds, or any other material toxic to plant growth;
 - iii. The pH of the topsoil is between 5.5 and 8.0;
 - iv. The plasticity index of the topsoil is between 3 and 15; and
 - v. The topsoil contains approximately 1-1/2 percent organic matter, by dry weight, either natural or added;
 - b. If another landscaping material is used as a surfacing layer, the material meets the following gradation:

Sieve Size	Percent Passing
1"	100
1/2"	95-100
No. 4	90-100
No. 10	70-100
No. 200	15-70

6. Use shallow-rooted, non-invasive, salt and drought tolerant evergreens if vegetation is planted on the evapotranspiration bed;
7. Install at least two observation ports to allow determination of the depth to the liquid surface of wastewater within the evapotranspiration bed;
8. Design the bed to pump out the saturated zone if accumulated salts or a similar condition impairs bed performance; and
9. Instead of the minimum vertical separation required under R18-9-A312(E), ensure that the minimum vertical separation from the bottom of the evapotranspiration bed liner to the surface of the seasonal high water table or impervious layer or formation is at least 12 inches.
- F. Installation requirements. In addition to the applicable requirements in R18-9-A313(A), an applicant shall ensure that:
 1. All liner seams are factory fabricated or field welded according to manufacturer's specifications. The applicant shall ensure that:
 2. The liner covers the bottom and all sidewalls of the bed and is cushioned on the top and bottom with layers of sand at least 2 inches thick or other puncture-protective material;

3. If the inlet pipe passes through the liner, the joint is tightly sealed to minimize leakage during the operational life of the facility;
 4. The liner is leak tested under the supervision of an Arizona-registered professional engineer; and
 5. A 2- to 4-inch layer of 1/2- to 1-inch gravel or crushed stone is placed around the distribution pipes within the bed. The applicant shall place filter cloth on top of the gravel or crushed stone to prevent sand from settling into the crushed stone or gravel.
- G. Additional Discharge Authorization requirements. An applicant shall submit the liner test results sealed by an Arizona-registered professional engineer to the Department for issuance of the Discharge Authorization.
- H. Operation and maintenance requirements. In addition to the applicable requirements in R18-9-A313(B), the permittee shall:
1. Not allow irrigation of an evapotranspiration bed; and
 2. Protect the bed from vehicle loads and other damaging activities.

R18-9-E308. 4.08 GENERAL PERMIT: WISCONSIN MOUND, LESS THAN 3000 GALLONS PER DAY DESIGN FLOW

- A. A 4.08 General Permit allows for the use of a Wisconsin mound with a design flow of less than 3000 gallons per day receiving wastewater treated to a level equal to or better than that specified in R18-9-E302(B).
1. Definition. For purposes of this Section, a "Wisconsin mound" means a disposal technology characterized by:
 - a. An above-grade bed system that blends with the land surface into which is dispensed pressure-dosed wastewater from a septic tank or other upstream treatment device,
 - b. Dispersal of wastewater under unsaturated flow conditions through the engineered media system contained in the mound, and
 - c. Wastewater treated by passage through the mound before percolation into the native soil below the mound.
 2. An applicant may use a Wisconsin mound if:
 - a. The native soil has excessively high or low permeability,
 - b. There is little native soil overlying fractured or excessively permeable rock, or
 - c. A reduction in minimum vertical separation is desired.
- B. Performance. An applicant shall design a Wisconsin mound so that treated wastewater released to the native soil meets the following criteria:
1. Performance Category A.
 - a. TSS of 20 milligrams per liter, 30-day arithmetic mean;
 - b. BOD₅ of 20 milligrams per liter, 30-day arithmetic mean;
 - c. Total nitrogen (as nitrogen) of 53 milligrams per liter, 5-month arithmetic mean; and
 - d. Total coliform level of 1000 (Log₁₀ 3.0) colony forming units per 100 milliliters, 95th percentile; or
 2. Performance Category B.
 - a. TSS of 30 milligrams per liter, 30-day arithmetic mean;
 - b. BOD₅ of 30 milligrams per liter, 30-day arithmetic mean;
 - c. Total nitrogen (as nitrogen) of 53 milligrams per liter, 5-month arithmetic mean; and
 - d. Total coliform level of 300,000 (Log₁₀ 5.5) colony forming units per 100 milliliters, 95th percentile.
- C. Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge requirements specified in R18-9-A301(B) and R18-9-A309(B), an applicant shall submit:
1. Specifications for the internal wastewater distribution system media proposed for use in the Wisconsin mound;
 2. Two scaled or dimensioned cross sections of the mound (one of the shortest basal area footprint dimension and one of the lengthwise dimension); and
 3. Design calculations following the "Wisconsin Mound Soil Absorption System: Siting, Design, and Construction Manual," published by the University of Wisconsin – Madison, January 1990 Edition (the Wisconsin Mound Manual). This material is incorporated by reference and does not include any later amendments or editions of the incorporated material. Copies of the incorporated material are available for inspection at the Arizona Department of Environmental Quality, 1110 W. Washington, Phoenix, AZ 85007 or may be obtained from the University of Wisconsin – Madison, SSWMP, 1525 Observatory Drive, Room 345, Madison, WI 53706.
- D. Design requirements. In addition to the applicable requirements in R18-9-A312, an applicant shall ensure that:
1. Pressure dosed wastewater is delivered into the Wisconsin mound through a pressurized line and secondary distribution lines into an engineered aggregate infiltration bed, or equivalent system, in conformance with R18-9-E304 and the Wisconsin Mound Manual. The applicant shall ensure that the aggregate is washed;
 2. Wastewater is applied to the inlet surface of the mound media at not more than 1.0 gallon per day per square foot of mound bed inlet surface if the mound bed media conforms with the "Standard Specification for Concrete Aggregates, C33-03 (2003)," published by the American Society for Testing and Materials and the Wisconsin Mound Manual, except if cinder sand is used that is the appropriate grade with not more than 5 percent passing a #200 screen. This material is incorporated by reference and does not include any later amendments or editions of the incorporated material. Copies of the incorporated material are available for inspection at the Arizona Department of Environmental Quality, 1110 W. Washington, Phoenix, AZ 85007 or may be obtained from the

- American Society for Testing and Materials International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959. The applicant shall:
 - a. For cinder sand, ensure that the rate is not more than 0.8 gallons per day per square foot of mound bed inlet surface; and
 - b. Wash the media used for the mound bed;
 3. The aggregate infiltration bed and mound bed is capped by coarser textured soil, such as sand, sandy loam, or silt loam. An applicant shall not use silty clay, clay loam, or clays;
 4. The cap material is covered by topsoil, following the procedure in the Wisconsin Mound Manual, and the topsoil is capable of supporting vegetation, is not clay, and is graded to drain;
 5. The top and bottom surfaces of the aggregate infiltration bed are level and do not exceed 10 feet in width and that:
 - a. The minimum depth of the aggregate infiltration bed is 9 inches, and
 - b. Synthetic filter fabric permeable to water and air and capable of supporting the cap and topsoil load is placed on the top surface of the aggregate infiltration bed;
 6. The minimum depth of mound bed media is:
 - a. Performance Category A, 24 inches; or
 - b. Performance Category B, 12 inches;
 7. The maximum allowable side slope of the mound bed, cap material, and topsoil is not more than one vertical to three horizontal;
 8. Ports for inspection and monitoring are provided to verify performance, including verification of unsaturated flow within the aggregate infiltration bed. The applicant shall:
 - a. Install a vertical PVC pipe and cap with a minimum diameter of 4 inches as an inspection port at the end of the disposal line, and
 - b. Install the pipe with a physical restraint to maintain pipe position;
 9. The main pressurized line and secondary distribution lines for the aggregate infiltration bed are equipped at appropriate locations with cleanouts to grade;
 10. The following requirements and the setbacks specified in R18-9-A312(C) are observed:
 - a. Increase setbacks for the following downslope features at least 30 feet from the toe of the mound system:
 - i. Property line,
 - ii. Driveway,
 - iii. Building,
 - iv. Ditch or interceptor drain, or
 - v. Any other feature that impedes water movement away from the mound; and
 - b. Ensure that no upslope natural feature or improvement channels surface water or groundwater to the mound area;
 11. The portion of the basal area of native soil below the mound conforms to the Wisconsin Mound Manual. The applicant shall:
 - a. Calculate the absorption of wastewater into the native soil for only the effective basal area;
 - b. Apply the soil absorption rate specified in R18-9-A312(D). The applicant may increase allowable loading rate to the mound bed inlet surface up to 1.6 times if the wastewater dispersed to the mound is pretreated to reduce the sum of TSS and BOD₅ to 60 mg/l or less. The applicant may increase the soil absorption rate to not more than 0.20 gallons per day per square foot of basal area if the following slowly permeable soils underlie the mound:
 - i. Sandy clay loam, clay loam, silty clay loam, or finer with weak platy structure; or
 - ii. Sandy clay loam, clay loam, silty clay loam, or silt loam with massive structure;
 12. The slope of the native soil at the basal area does not exceed 25 percent, and a slope stability analysis is performed whenever the basal area or site slope within 50 horizontal feet from the mound system footprint exceeds 15 percent.
- E. Installation. An applicant shall:
1. Prepare native soil for construction of a Wisconsin mound system. The applicant shall:
 - a. Mow vegetation and cut down trees in the vicinity of the basal area site to within 2 inches of the surface;
 - b. Leave in place boulders and tree stumps and other herbaceous material that would excessively alter the soil structure if removed after mowing and cutting;
 - c. Plow native soil serving as the basal area footprint along the contours to 7- to 8-inch depth;
 - d. Not substitute rototilling for plowing; and
 - e. Begin mound construction immediately after plowing;
 2. Place each layer of the bed system to prevent differential settling and promote uniform density; and
 3. Use the Wisconsin Mound Manual to guide any other detail of installation. The applicant may vary installation procedures and criteria depending on mound design but shall use installation procedures and criteria that are at least equivalent to those in the Wisconsin Mound Manual.
- F. Operation and maintenance requirements. In addition to the applicable requirements specified in R18-9-A313(B), the permittee shall:
1. If an existing mound system shows evidence of overload or hydraulic failure, conduct the following sequence of

evaluations:

- a. Verify the actual loading and performance of the pretreatment system.
 - b. Verify the watertightness of the pretreatment and dosing tanks;
 - c. Determine the dosing rates and dosing intervals to the aggregate infiltration bed and compare it with the original design to evaluate the presence or absence of saturated conditions in the aggregate infiltration bed;
 - d. If the above steps in subsections (F)(1)(a) through (c) do not indicate an anomalous condition, evaluate the site and recalculation of the disposal capability to determine if mound lengthening is feasible;
 - e. Determine if site modifications are possible including changing surface drainage patterns at upgrade locations and lowering the groundwater level by installing interceptor drains to reduce native soil saturation at shallow levels; and
 - f. Determine if the basal area can be increased, consistent with R18-9-A309(A)(9)(b)(iv);
2. Prepare servicing and waste disposal procedures and task schedules necessary for clearing the main pressurized wastewater line and secondary distribution lines, septic tank effluent filter, pump intake, and controls.

R18-9-E309. 4.09 GENERAL PERMIT: ENGINEERED PAD SYSTEM, LESS THAN 3000 GALLONS PER DAY DESIGN FLOW

- A. A 4.09 General Permit allows for the use of an engineered pad system receiving wastewater treated to a level equal to or better than that specified in R18-9-E302(B).
 1. Definition. For purposes of this Section, an “engineered pad system” means a treatment and disposal technology characterized by:
 - a. The delivery of pretreated wastewater by gravity or pressure distribution to the engineered pad and sand bed assembly, followed by dispersal of the wastewater into the native soil; and
 - b. Wastewater movement through the engineered pad and sand bed assembly by gravity under unsaturated flow conditions to provide additional passive biological treatment.
 2. The applicant may use an engineered pad system if:
 - a. The native soil is excessively permeable,
 - b. There is little native soil overlying fractured or excessively permeable rock, or
 - c. The available area is limited for installing a disposal works authorized by R18-9-E302.
- B. Performance. An applicant shall ensure that:
 1. The engineered pad system is designed so that the treated wastewater released to the native soil meets the following criteria:
 - a. TSS of 50 milligrams per liter, 30-day arithmetic mean;
 - b. BOD₅ of 50 milligrams per liter, 30-day arithmetic mean;
 - c. Total nitrogen (as nitrogen) of 53 milligrams per liter, 5-month arithmetic mean; and
 - d. Total coliform level of 1,000,000 (Log₁₀ 6) colony forming units per 100 milliliters, 95th percentile; or
 2. The engineered pad system is designed to meet any other performance, loading rate, and configuration criteria specified in the reviewed product list maintained by the Department as required under R18-9-A309(E).
- C. Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge requirements specified in R18-9-A301(B) and R18-9-A309(B), an applicant shall submit design materials and construction specifications for the engineered pad system.
- D. Design requirements. In addition to the applicable requirements in R18-9-A312, an applicant shall ensure that:
 1. Gravity and pressurized wastewater delivery is from a septic tank or intermediate watertight chamber equipped with a pump and controls. The applicant shall ensure that:
 - a. Delivered wastewater is distributed onto the top of the engineered pad system and achieves even distribution by good engineering practice, and
 - b. The dosing rate for pressurized wastewater delivery is at least four doses per day and no more than 24 doses per day;
 2. The sand bed consists of mineral sand washed to conform to the “Standard Specification for Concrete Aggregates, C33-03 (2003),” which is incorporated by reference in R18-9-E308(D)(2), unless the performance testing and design specifications of the engineered pad manufacturer justify a substitute specification. The applicant shall ensure that:
 - a. The sand bed design provides for the placement of at least 6 inches of sand bed material below and along the perimeter of each pad, and
 - b. The contact surface between the bottom of the sand bed and the native soil is level;
 3. The spacing between adjacent two-pad-wide rows is at least two times the distance between the bottom of the distribution pipe and the bottom of the sand bed or 5 feet, whichever is greater;
 4. The wastewater distribution system installed on the top of the engineered pad system is covered with a breathable geotextile material and the breathable geotextile material is covered with at least 10 inches of backfill.
 - a. The applicant shall ensure that rocks and cobbles are removed from backfill cover and grade the backfill for drainage.
 - b. The applicant may place the engineered pad system above grade, partially bury it, or fully bury it

- depending on site and service circumstances;
- 5. The engineered pad system is constructed with durable materials and capable of withstanding stress from installation and operational service; and
- 6. At least two inspection ports are installed in the engineered pad system to confirm unsaturated wastewater treatment conditions at diagnostic locations.
- E. Installation requirements. In addition to the applicable requirements in R18-9-A313(A) an applicant shall place sand media to obtain a uniform density of 1.3 to 1.4 grams per cubic centimeter.
- F. Operation and maintenance requirements. In addition to the applicable requirements in R18-9-A313(B), an applicant shall inspect the backfill cover for physical damage or erosion and promptly repair the cover, if necessary.

R18-9-E310. 4.10 GENERAL PERMIT: INTERMITTENT SAND FILTER, LESS THAN 3000 GALLONS PER DAY DESIGN FLOW

- A. A 4.10 General Permit allows for the use of an intermittent sand filter receiving wastewater treated to a level equal to or better than that specified in R18-9-E302(B).
 - 1. Definition. For purposes of this Section, an “intermittent sand filter” means a treatment technology characterized by:
 - a. The pressurized delivery of pretreated wastewater to an engineered sand bed in a containment vessel equipped with an underdrain system or designed as a bottomless filter;
 - b. Delivered wastewater dispersed throughout the sand media by periodic doses from the delivery pump to maintain unsaturated flow conditions in the bed; and
 - c. Wastewater that is treated during passage through the media, collected by a bed underdrain chamber, and removed by pump or gravity to the disposal works, or wastewater that percolates downward directly into the native soil as part of a bottomless filter design.
 - 2. An applicant may use an intermittent sand filter if:
 - a. The native soil is excessively permeable,
 - b. There is little native soil overlying fractured or excessively permeable rock, or
 - c. The applicant desires a reduction in setback distances or minimum vertical separation.
- B. Performance. An applicant shall ensure that:
 - 1. An intermittent sand filter with underdrain system is designed so that it produces treated wastewater that meets the following criteria:
 - a. TSS of 10 milligrams per liter, 30-day arithmetic mean;
 - b. BOD₅ of 10 milligrams per liter, 30-day arithmetic mean;
 - c. Total nitrogen (as nitrogen) of 40 milligrams per liter, 5-month arithmetic mean; and
 - d. Total coliform level or 1000 (Log₁₀ 3) colony forming units per 100 milliliters, 95th percentile; or
 - 2. An intermittent sand filter with a bottomless filter is designed so that it produces treated wastewater released to the native soil that meets the following criteria:
 - a. TSS of 20 milligrams per liter, 30-day arithmetic mean;
 - b. BOD₅ of 20 milligrams per liter, 30-day arithmetic mean;
 - c. Total nitrogen (as nitrogen) of 53 milligrams per liter, five-month arithmetic mean; and
 - d. Total coliform level of 100,000 (Log₁₀ 5) colony forming units per 100 milliliters, 95th percentile.
- C. Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge requirements specified in R18-9-A301(B) and R18-9-A309(B), an applicant shall submit specifications for the media proposed for use in the intermittent sand filter.
- D. Design requirements. In addition to the applicable requirements in R18-9-A312, an applicant shall ensure that:
 - 1. Pressurized wastewater delivery is from the septic tank or separate watertight chamber with a pump sized and controlled to deliver the pretreated wastewater to the top of the intermittent sand filter. The applicant shall ensure that the dosing rate is at least 4 doses per day and not more than 24 doses per day;
 - 2. The pressurized wastewater delivery system provides even distribution in the sand filter through good engineering practice. The applicant shall:
 - a. Specify all necessary controls, pipes, valves, orifices, filter cover materials, gravel, or other distribution media, and monitoring and servicing components in the design documents; and
 - b. Ensure that the cover and topsoil is 6 to 12 inches in depth and graded to drain;
 - 3. The sand filter containment vessel is watertight, structurally sound, durable, and capable of withstanding stress from installation and operational service. The applicant may place the intermittent sand filter above grade, partially buried, or fully buried depending on site and service circumstances;
 - 4. Media used in the intermittent sand filter is mineral sand and that the media is washed and conforms to “Standard Specification for Concrete Aggregates, C33-03,” which is incorporated by reference in R18-9-E308(D)(2);
 - 5. The sand media depth is a minimum of 24 inches with the top and bottom surfaces level and the maximum wastewater loading rate is 1.0 gallons per day per square foot of inlet surface at the rated daily design flow;
 - 6. The underdrain system:
 - a. Is within the containment vessel;
 - b. Supports the filter media and all overlying loads from the unsupported construction above the top surface of the sand media;

- c. Has sufficient void volume above the normal high level of the intermittent sand filter effluent to prevent saturation of the bottom of the sand media by a 24-hour power outage or pump malfunction; and
 - d. Includes necessary monitoring, inspection, and servicing features;
- 7. Inspection ports are installed in the distribution media and in the underdrain;
- 8. The bottomless filter is designed similar to the underdrain system, except that the sand media is positioned on top of the native soil absorption surface. The applicant shall ensure that companion modifications are made that eliminate the containment vessel bottom and underdrain and relocate the underdrain inspection port to ensure reliable indication of the presence or absence of water saturation in the sand media;
- 9. The native soil absorption system is designed to ensure that the linear loading rate does not exceed site disposal capability; and
- 10. The bottomless sand filter discharge rate per unit area to the native soil does not exceed the adjusted soil absorption rate for the quality of wastewater specified in subsection (B)(2).
- E. Installation requirements. In addition to the applicable requirements in R18-9-A313(A), an applicant shall place the containment vessel, underdrain system, filter media, and pressurized wastewater distribution system in an excavation with adequate foundation and each layer installed to prevent differential settling and promote a uniform density throughout of 1.3 to 1.4 grams per cubic centimeter within the sand media.
- F. Operation and maintenance requirements. The applicant shall follow the applicable requirements in R18-9-A313(B).

R18-9-E311. 4.11 GENERAL PERMIT: PEAT FILTER, LESS THAN 3000 GALLONS PER DAY DESIGN FLOW

- A. A 4.11 General Permit allows for the use of a peat filter receiving wastewater treated to a level equal to or better than that specified in R18-9-E302(B).
 - 1. Definition. For purposes of this Section, a “peat filter” means a disposal technology characterized by:
 - a. The dosed delivery of treated wastewater to the peat bed, which can be a manufactured module or a disposal bed excavated in native soil and filled with compacted peat;
 - b. Wastewater passing through the peat that is further treated by removal of positively charged molecules, filtering, and biological activity before entry into native soil; and
 - c. If the peat filter system is constructed as a disposal bed filled with compacted peat, wastewater that is absorbed into native soil at the bottom and sides of the bed.
 - 2. An applicant may configure a modular system if a portion of the wastewater that has passed through the peat filter is recirculated back to the pump chamber.
 - 3. An applicant may use a peat filter system if:
 - a. The native soil is excessively permeable,
 - b. There is little native soil overlying fractured or excessively permeable rock,
 - c. A reduction in setback distances or minimum vertical separation is desired, or
 - d. Cold weather inhibits performance of other treatment or disposal technologies.
- B. Performance. An applicant shall ensure that a peat filter is designed so that it produces treated wastewater that meets the following criteria:
 - 1. TSS of 15 milligrams per liter, 30-day arithmetic mean;
 - 2. BOD₅ of 15 milligrams per liter, 30-day arithmetic mean;
 - 3. Total nitrogen (as nitrogen) of 53 milligrams per liter, 5-month arithmetic mean; and
 - 4. Total coliform level of 100,000 (Log₁₀ 5) colony forming units per 100 milliliters, 95th percentile.
- C. Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge requirements specified in R18-9-A301(B) and R18-9-A309(B), an applicant shall submit:
 - 1. Specifications for the peat media proposed for use in the peat filter or provided in the peat module, including:
 - a. Porosity;
 - b. Degree of humification;
 - c. pH;
 - d. Particle size distribution;
 - e. Moisture content;
 - f. A statement of whether the peat is air dried, and whether the peat is from sphagnum moss or bog cotton; and
 - g. A description of the degree of decomposition;
 - 2. Specifications for installing the peat media; and
 - 3. If a peat module is used:
 - a. The name and address of the manufacturer,
 - b. The model number, and
 - c. A copy of the manufacturer’s warranty.
- D. Design requirements.
 - 1. If a pump tank is used to dose the peat module or bed, an applicant shall:
 - a. Ensure that the pump tank is sized to contain the dose volume and a reserve volume above the high water alarm that will contain the volume of daily design flow; and

- b. Use a control panel with a programmable timer to dose at the applicable loading rate.
 2. Peat module system. In addition to the applicable requirements in R18-9-A312, the applicant shall:
 - a. Size the gravel bed supporting the peat filter modules to allow it to act as a disposal works and ensure that the bed is level, long, and narrow, and installed on contour to optimize lateral movement away from the disposal area;
 - b. For modules designed to allow wastewater flow through the peat filter and base material into underlying native soil, size the base on which the modules rest to accommodate the soil absorption rate of the native soil;
 - c. Place fill over the module so that it conforms to the manufacturer's specification. If the fill is planted, the applicant shall use only grass or shallow rooted plants; and
 - d. Ensure that the peat media depth is at least 24 inches, the peat is installed with the top and bottom surfaces level and the maximum wastewater loading rate is 5.5 gallons per day per square foot of inlet surface at the rated daily design flow, unless the Department approves a different wastewater loading rate under R18-9-A309(E).
 3. Peat filter bed system. In addition to the applicable requirements in R18-9-A312, the applicant shall ensure that:
 - a. The bed is filled with peat derived from sphagnum moss and compacted according to the installation specification;
 - b. The maximum wastewater loading rate is 1 gallon per day per square foot of inlet surface at the rated daily design flow;
 - c. At least 24 inches of installed peat underlies the distribution piping and 10 to 14 inches of installed peat overlies the piping;
 - d. The cover material over the peat filter bed is slightly mounded to promote runoff of rainfall. The applicant shall not place additional fill over the peat; and
 - e. The peat is air dried, with a porosity greater than 90 percent, and a particle size distribution of 92 to 100 percent passing a No. 4 sieve and less than 8 percent passing a No. 30 sieve.
- E. Installation requirements. In addition to the applicable requirements in R18-9-A313(A), the applicant shall:
 1. Peat module system.
 - a. Compact the bottom of all excavations for the filter modules, pump, aerator, and other components to provide adequate foundation, slope the bottom toward the discharge to minimize ponding, and ensure that the bottom is flat, and free of debris, rocks, and sharp objects. If the excavation is uneven or rocky, the applicant shall use a bed of sand or pea gravel to create an even, smooth surface;
 - b. Place the peat filter modules on a level, 6-inch deep gravel bed;
 - c. Place backfill around the modules and grade the backfill to divert surface water away from the modules;
 - d. Not place objects on or move objects over the system area that might damage the module containers or restrict airflow to the modules;
 - e. Cover gaps between modules to prevent damage to the system;
 - f. Fit each system with at least one sampling port that allows collection of wastewater at the exit from the final treatment module;
 - g. Provide the modules and other components with anti-buoyancy devices to ensure stability in the event of flooding or high water table conditions; and
 - h. Provide a mechanism for draining the filter module inlet line; or
 2. Peat filter bed system.
 - a. Scarify the bottom and sides of the leaching bed excavation to remove any smeared surfaces, and
 - i. Unless directed by an installation specification consistent with this Chapter, place peat media in the excavation in 6-inch lifts; and
 - ii. Compact each lift before the next lift is added. The applicant shall take care to avoid compaction of the underlying native soil;
 - b. Lay distribution pipe in trenches cut in the compacted peat, and
 - i. Ensure that at least 3 inches of aggregate underlie the pipe to reduce clogging of holes or scouring of the peat surrounding the pipe, and
 - ii. Place peat on top of and around the sides of the pipes.
- F. Operation and maintenance requirements. In addition to the applicable requirements in R18-9-A313(B), the permittee shall inspect the finished grade over the peat filter for proper drainage, protection from damaging loads, and root invasion of the wastewater distribution system and perform maintenance as needed.

R18-9-E312. 4.12 GENERAL PERMIT: TEXTILE FILTER, LESS THAN 3000 GALLONS PER DAY DESIGN FLOW

- A. A 4.12 General Permit allows for the use of a textile filter receiving wastewater treated to a level equal to or better than that specified in R18-9-E302(B).
 1. Definition. For purposes of this Section, a "textile filter" means a disposal technology characterized by:
 - a. The flow of wastewater into a packed bed filter in a containment structure or structures. The packed bed filter uses a textile filter medium with high porosity and surface area; and

- b. The textile filter medium provides further treatment by removing suspended material from the wastewater by physical straining, and reducing nutrients by microbial action.
 2. An applicant may use a textile filter in conjunction with a two-compartment septic tank or a two-tank system if the second compartment or tank is used as a recirculation and blending tank. The applicant shall divert a portion of the wastewater flow from the textile filter back into the second tank for further treatment.
 3. An applicant may use a textile filter if:
 - a. Nitrogen reduction is desired,
 - b. The native soil is excessively permeable,
 - c. There is little native soil overlying fractured or excessively permeable rock, or
 - d. A reduction in setback distances or minimum vertical separation is desired.
- B. Performance. An applicant shall ensure that a textile filter is designed so that it produces treated wastewater that meets the following criteria:
 1. TSS of 15 milligrams per liter, 30-day arithmetic mean;
 2. BOD₅ of 15 milligrams per liter, 30-day arithmetic mean;
 3. Total nitrogen (as nitrogen) of 30 milligrams per liter, five-month arithmetic mean, or 15 milligrams, five-month arithmetic mean per liter if documented under subsection (C)(4); and
 4. Total coliform level of 100,000 (Log₁₀ 5) colony forming units per 100 milliliters, 95th percentile.
- C. Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge requirements specified in R18-9-A301(B) and R18-9-A309(B), an applicant shall submit:
 1. The name and address of the filter manufacturer;
 2. The filter model number;
 3. A copy of the manufacturer's filter warranty;
 4. If the system is for nitrogen reduction to 15 milligrams per liter, five-month arithmetic mean, specifications on the nitrogen reduction performance of the filter system and corroborating third-party test data;
 5. The manufacturer's operation and maintenance recommendations to achieve a 20-year operational life; and
 6. If a pump or aerator is required for proper operation, the pump or aerator model number and a copy of the manufacturer's warranty.
- D. Design requirements. In addition to the applicable requirements in R18-9-A312, an applicant shall ensure that:
 1. The textile medium has a porosity of greater than 80 percent;
 2. The wastewater is delivered to the textile filter by gravity flow or a pump;
 3. If a pump is used to dose the textile filter, the pump and appurtenances meet the following criteria:
 - a. The textile media loading rate and wastewater recirculation rate are based on calculations that conform with performance data listed in the reviewed product list maintained by the Department as required under R18-9-A309(E),
 - b. The tank and recirculation components are sized to contain the dose volume and a reserve volume above the high water level alarm that will contain the volume of daily design flow, and
 - c. A control panel with a programmable timer is used to dose the textile media at the applicable loading rate and wastewater recirculation rate.
- E. Installation requirements. In addition to the applicable requirements in R18-9-A313(A), an applicant shall:
 1. Before placing the filter modules, slope the bottom of the excavation for the modules toward the discharge point to minimize ponding;
 2. Ensure that the bottom of all excavations for the filter modules, pump, aerator, or other components is level and free of debris, rocks, and sharp objects. If the excavation is uneven or rocky, the applicant shall use a bed of sand or pea gravel to create an even, smooth surface;
 3. Provide the modules and other components with anti-buoyancy devices to ensure they remain in place in the event of high water table conditions; and
 4. Provide a mechanism for draining the filter module inlet line.
- F. Operation and maintenance requirements. In addition to the applicable requirements in R18-9-A313(B), the permittee shall not flush corrosives or other materials known to damage the textile material into any drain that transmits wastewater to the on-site wastewater treatment facility.

R18-9-E313. 4.13 GENERAL PERMIT: DENITRIFYING SYSTEM USING SEPARATED WASTEWATER STREAMS, LESS THAN 3000 GALLONS PER DAY DESIGN FLOW

- A. A 4.13 General Permit allows for the use of a separated wastewater streams, denitrifying system for a dwelling.
 1. Definition. For purposes of this Section a "denitrifying system using wastewater streams" means a gravity flow treatment and disposal system for a dwelling that requires separate plumbing drains for conducting dishwasher, kitchen sink, and toilet flush water to wastewater treatment tank "A" and all other wastewater to a wastewater treatment tank "B."
 - a. Treated wastewater from tanks "A" and "B" is delivered to an engineered composite disposal bed system that includes an upper distribution pipe to deliver treated wastewater from tank "A" to a columnar celled, sand-filled bed.
 - b. The wastewater drains downward into a sand bed, then into a pea gravel bed with an internal distribution

- pipe system that delivers the treated wastewater from tank “B.”
 - c. The entire composite bed is constructed within an excavation about 6 feet deep.
 - d. The system operates under gravity flow from tanks “A” and “B.”
 - e. An engineered sampling assembly is installed at the midpoint of the disposal line run and at the base of the composite bed during construction to monitor system performance.
 - 2. An applicant may use a separated wastewater streams, denitrifying system where total nitrogen reduction is required under this Article before release to the native soil.
- B. Performance. An applicant shall ensure that a separated wastewater streams, denitrifying system is designed so that the treated wastewater released to the native soil meets the following criteria:
 - 1. TSS of 30 milligrams per liter, 30-day arithmetic mean;
 - 2. BOD₅ of 30 milligrams per liter, 30-day arithmetic mean;
 - 3. Total nitrogen (as nitrogen) of 30 milligrams per liter, five-month arithmetic mean; and
 - 4. Total coliform level of 1,000,000 (Log₁₀ 6) colony forming units per 100 milliliters, 95th percentile.
- C. Notice of Intent to Discharge. The applicant shall comply with the Notice of Intent to Discharge requirements in R18-9-A301(B) and R18-9-A309(B).
- D. Design, installation, operation, and maintenance requirements. The applicant shall comply with the applicable design, installation, operation, and maintenance requirements in R18-9-A312, R18-9-A313(A), and R18-9-A313(B).
- E. Reference design.
 - 1. An applicant may use a separated wastewater streams, denitrifying system achieving the performance requirements specified in subsection (B) by following a reference design on file with the Department.
 - 2. The applicant shall file a form provided by the Department for supplemental information about the proposed system with the applicant’s submittal of the Notice of Intent to Discharge.

R18-9-E314. 4.14 GENERAL PERMIT: SEWAGE VAULT, LESS THAN 3000 GALLONS PER DAY DESIGN FLOW

- A. A 4.14 General Permit allows for the use of a sewage vault that receives sewage.
 - 1. An applicant may use a sewage vault if a severe site or operational constraint prevents installation of a conventional septic tank and disposal works or any other on-site wastewater treatment facility allowed under this Article.
 - 2. An applicant may install a sewage vault as a temporary measure if connection to a sewer or installation of another on-site wastewater treatment facility occurs within two years of the connection or installation.
- B. Performance. An applicant shall:
 - 1. Not allow a discharge from a sewage vault to the native soil or land surface, and
 - 2. Pump and dispose of vault contents at a sewage treatment facility or other sewage disposal mechanism allowed by law.
- C. Notice of Intent to Discharge. The applicant shall comply with the Notice of Intent to Discharge requirements in R18-9-A301(B) and R18-9-A309(B).
- D. Design requirements. In addition to the requirements in R18-9-A312, an applicant shall:
 - 1. Install a sewage vault with a capacity that is at least 10 times the daily design flow determined by R18-9-A314(4)(a)(i),
 - 2. Use design elements to prevent the buoyancy of the vault if installed in an area where a high groundwater table may impinge on the vault,
 - 3. Test the sewage vault for leakage using the procedure under R18-9-A314(5)(d). The tank passes the water test if the water level does not drop over a twenty-four hour period,
 - 4. Install an alarm or signal on the vault to indicate when 85 percent of the vault capacity is reached, and
 - 5. Contract with a person who licensed a vehicle under 18 A.A.C. 13, Article 11 to pump out the vault on a schedule specified within the contract to ensure that the vault is pumped before full.
- E. Installation, operation, and maintenance requirements. The applicant shall comply with the applicable installation, operation, and maintenance requirements in R18-9-A313(A) and (B).
- F. Reference design.
 - 1. An applicant may use a sewage vault that achieves the performance requirements in subsection (B) by following a reference design on file with the Department.
 - 2. The applicant shall file a form provided by the Department for supplemental information about the proposed storage vault with the applicant’s submittal of the Notice of Intent to Discharge.

R18-9-E315. 4.15 GENERAL PERMIT: AEROBIC SYSTEM LESS THAN 3000 GALLONS PER DAY DESIGN FLOW

- A. A 4.15 General Permit allows for the construction and use of an aerobic system that uses aeration for treatment.
 - 1. Definition. For purposes of this Section, an “aerobic system” means a treatment unit consisting of components that:
 - a. Mechanically introduce oxygen to wastewater,

- b. Typically provide clarification of the wastewater after aeration, and
 - c. Convey the treated wastewater by pressure or gravity distribution to the disposal works.
 2. An applicant may use an aerobic system if:
 - a. Enhanced biological processing is needed to treat wastewater with high organic content,
 - b. A soil or site condition is not adequate for installation of a standard septic tank and disposal works under R18-9-E302,
 - c. A highly treated wastewater amenable to disinfection is needed, or
 - d. Nitrogen removal from the wastewater is needed and removal performance of the system is documented according to subsection (C)(6).
- B. Performance.
 1. An applicant shall ensure that the aerobic system is designed so that the treated wastewater released to the native soil meets the following criteria:
 - a. TSS of 30 milligrams per liter, 30-day arithmetic mean;
 - b. BOD₅ of 30 milligrams per liter, 30-day arithmetic mean;
 - c. Total nitrogen (as nitrogen) of 53 milligrams per liter, five-month arithmetic mean, or as low as 15 milligrams, five-month arithmetic mean per liter if documented under subsection (C)(6); and
 - d. Total coliform level of 300,000 (Log₁₀ 5.5) colony forming units per 100 milliliters, 95th percentile.
 2. An applicant may use an aerobic system that meets the following less stringent performance criteria if the aerobic technology is listed by the Department under R18-9-A309(E) and the Department bases its review and listing on the technology being less costly and simpler to operate when compared to other aerobic technologies:
 - a. TSS of 60 milligrams per liter, 30-day arithmetic mean;
 - b. BOD₅ of 60 milligrams per liter, 30-day arithmetic mean;
 - c. Total nitrogen (as nitrogen) of 53 milligrams per liter, five-month arithmetic mean, or as low as 15 milligrams, five month arithmetic mean per liter, if documented under subsection (C)(6); and
 - d. Total coliform level of 1,000,000 (Log₁₀ 7) colony forming units per 100 milliliters, 95th percentile.
- C. Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge requirements specified in R18-9-A301(B) and R18-9-A309(B), an applicant shall submit:
 1. The name and address of the aerobic system manufacturer;
 2. The model number of the aerobic system;
 3. Evidence of performance specified in subsection (B)(1) or (B)(2), as applicable;
 4. A list of pretreatment components needed to meet performance requirements;
 5. A copy of the manufacturer's warranty and operation and maintenance recommendations to achieve performance over a 20-year operational life; and
 6. If the aerobic system will be used for nitrogen removal from the wastewater, either:
 - a. Evidence of a valid product listing under R18-9-E309(E) indicating nitrogen removal performance, or
 - b. Specifications and third party test data corroborating nitrogen reduction to the intended level.
- D. Design requirements. In addition to the applicable requirements in R18-9-A312, an applicant shall ensure that:
 1. The wastewater is delivered to the aerobic treatment unit by gravity flow either directly or by a lift pump;
 2. An interceptor or other pretreatment device is incorporated if necessary to meet the performance criteria specified in subsection (B)(1) or (2), or if recommended by the manufacturer for pretreatment if a garbage disposal appliance is used;
 3. A clarifier is provided after aeration for any treatment technology that achieves performance that is equal to or better than the performance criteria specified in subsection (B)(1); and
 4. Ports for inspection and monitoring are provided to verify performance.
- E. Installation requirements. In addition to the applicable requirements in R18-9-A313(A), an applicant shall ensure that:
 1. The installation of the aerobic treatment components conforms to manufacturer's specifications that do not conflict with Articles 1 and 3 of this Chapter and to the design documents specified in the Construction Authorization issued under R18-9-A301(D)(1)(c); and
 2. Excavation and foundation work, and backfill placement is performed to prevent differential settling and adverse drainage conditions.
- F. Operation and maintenance requirements. The permittee shall:
 1. Follow the applicable requirements in R18-9-A313(B), and
 2. Ensure that filters are cleaned and replaced as necessary.
- G. Reference design.
 1. An applicant may use an aerobic system that achieves the applicable performance requirements by following a reference design on file with the Department.
 2. An applicant using a reference design shall submit, with the Notice of Intent to Discharge, supplemental information specific to the proposed installation on a form approved by the Department.

R18-9-E316. 4.16 GENERAL PERMIT: NITRATE-REACTIVE MEDIA FILTER, LESS THAN 3000 GALLONS PER DAY DESIGN FLOW

- A. A 4.16 General Permit allows for the construction and use of a nitrate-reactive media filter receiving pretreated

wastewater.

1. Definition. "Nitrate-reactive media filter" means a treatment technology characterized by:
 - a. The application of pretreated, nitrified wastewater to a packed bed filter in a containment structure. A packed bed filter consists of nitrate-reactive media that receives pretreated wastewater under appropriate design and operational conditions, and
 - b. The ability of the nitrate-reactive filter to further treat the nitrified wastewater by removing total nitrogen by chemical and physical processes.
2. An applicant shall use a nitrate-reactive media filter with a treatment or disposal works to pretreat and dispose of the wastewater.
3. An applicant may use a nitrate-reactive media filter if nitrogen reduction is required under this Article.
- B. Restrictions. The applicant shall not use any product to supply pretreated wastewater to the nitrate-reactive media filter unless:
 1. The product meets the pretreatment requirements for the filter based on product performance information in the product listing, and
 2. The product is listed by the Department as a reviewed product under R18-9-A309(E).
- C. Performance. An applicant shall ensure that a nitrate-reactive media filter is designed so that it produces treated wastewater that does not exceed the following criteria:
 1. TSS of 30 milligrams per liter, 30-day arithmetic mean;
 2. BOD₅ of 30 milligrams per liter, 30-day arithmetic mean;
 3. Total nitrogen (as nitrogen) of 10 milligrams per liter, five-month arithmetic mean; and
 4. Total coliform level of 1,000,000 (Log₁₀ 6) colony forming units per 100 milliliters, 95th percentile.
- D. Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge requirements specified in R18-9-A301(B) and R18-9-A309(B), an applicant shall submit:
 1. The name and address of the filter manufacturer;
 2. The filter model number;
 3. The manufacturer's requirements for pretreated wastewater supplied to the nitrate-reactive media filter;
 4. The manufacturer's specifications for design, installation, and operation for the nitrate-reactive media filter system and appurtenances;
 5. The manufacturer's warranty for the nitrate-reactive media filter system and appurtenances;
 6. The manufacturer's operation and maintenance recommendations to achieve a 20-year operational life for the nitrate-reactive media filter system and appurtenances; and
 7. The manufacturer name and model number for all appurtenances that significantly contribute to achieving the performance required in subsection (C).
- E. Design requirements. In addition to the applicable design requirements specified in R18-9-A312, an applicant shall ensure that:
 1. The nitrate-reactive media filter and appurtenances conform with manufacturer's specifications,
 2. The loading rate of pretreated wastewater to the nitrate-reactive media inlet surface meets the manufacturer's specification and does not exceed 5.00 gallons per day per square foot of media inlet surface area, and
 3. The bed packed with nitrate reactive media is at least 24 inches thick.
- F. Installation requirements. In addition to the applicable requirements in R18-9-A313(A), an applicant shall ensure that:
 1. The nitrate-reactive media filter and appurtenances are installed according to manufacturer's specifications to achieve proper wastewater treatment, hydraulic performance, and operational life; and
 2. Anti-buoyancy devices are installed when high water table or extreme soil saturation conditions are likely during operational life of the facility.
- G. Operation and maintenance requirements. In addition to the applicable requirements in R18-9-A313(B) and the manufacturer's specifications for the nitrite-reactive media filter, the permittee shall not dispose of corrosives or other materials that are known to damage the nitrate-reactive media filter system into the on-site wastewater treatment facility.

R18-9-E317. 4.17 GENERAL PERMIT: CAP SYSTEM, LESS THAN 3000 GALLONS PER DAY DESIGN FLOW

- A. A 4.17 General Permit allows for the use of a cap fill cover over a conventional trench disposal works receiving wastewater treated to a level equal to or better than that specified in R18-9-E302(B).
 1. Definition. For purposes of this Section, a "cap system" means a disposal technology characterized by:
 - a. A soil cap, consisting of engineered fill placed over a trench that is not as deep as a trench allowed by R18-9-E302; and
 - b. A design that compensates for reduced trench depth by maintaining and enhancing the infiltration of wastewater into native soil through the trench sidewalls.
 2. An applicant may use a cap system if:
 - a. There is little native soil overlying fractured or excessively permeable rock, or
 - b. A high water table does not allow the minimum vertical separation to be met by a system authorized by R18-9-E302.
- B. Performance. An applicant shall ensure that the design soil absorption rate and vertical separation complies with this

- Chapter for a trench, based on the following performance, unless additional pretreatment is provided:
1. TSS of 75 milligrams per liter, 30-day arithmetic mean;
 2. BOD₅ of 150 milligrams per liter, 30-day arithmetic mean;
 3. Total nitrogen (as nitrogen) of 53 milligrams per liter, five-month arithmetic mean; and
 4. Total coliform level of 100,000,000 (Log₁₀ 8) colony forming units per 100 milliliters, 95th percentile.
- C. Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge requirements in R18-9-A301(B) and R18-9-A309(B), an applicant shall submit specifications for the proposed cap fill material.
- D. Design requirements. In addition to the applicable requirements in R18-9-A312, an applicant shall ensure that:
1. The soil texture from the natural grade to the depth of the layer or the water table that limits the soil for unsaturated wastewater flow is no finer than silty clay loam;
 2. Cap fill material used is free of debris, stones, frozen clods, or ice, and is the same as or one soil group finer than that of the disposal site material, except that the applicant shall not use fill material finer than clay loam as an additive;
 3. Trench construction.
 - a. The trench bottom is at least 12 inches below the bottom of the disposal pipe and not more than 24 inches below the natural grade, and the trench bottom and disposal pipe are level;
 - b. The aggregate cover over the disposal pipe is 2 inches thick and the top of the aggregate cover is level and not more than 9 inches above the natural grade;
 - c. The cap fill cover above the top of the aggregate cover is at least 9 inches but not more than 18 inches thick. The applicant shall ensure that:
 - i. The cap surface is protected to prevent erosion and sloped to route surface drainage around the ends of the trench; and
 - ii. If the top of the aggregate is at or below the original ground surface, the cap surface has side slopes not more than one vertical to three horizontal; or
 - iii. If the top of the aggregate is above the original ground surface, the horizontal extent of the finished fill edges is at least 10 feet beyond the nearest trench sidewall or endwall;
 - d. The criteria for trench length, bottom width and spacing, and disposal pipe size is the same as that for the trench system prescribed in R18-9-E302;
 - e. Permeable geotextile fabric is placed on the aggregate top, trench end, and sidewalls extending above natural grade;
 - f. The native soil within the disposal site and the adjacent downgradient area to a 50-foot horizontal distance does not exceed a 12 percent slope if the top of the aggregate cover extends above the natural grade at any location along the trench length. The applicant shall ensure that the slope within the disposal site and the adjacent downgradient area to a 50-foot horizontal distance does not exceed 20 percent if the top of the aggregate cover does not extend above the natural grade;
 - g. The fill material is compacted to a density of 90 percent of the native soil if the invert elevation of the disposal pipe is at or above the natural grade at any location along the trench length;
 - h. At least one observation port is installed to the bottom of each cap fill trench;
 - i. The effective absorption area for each trench is the sum of the trench bottom area and the sidewall area. The height of the sidewall used for calculating the sidewall area is the vertical distance between the trench bottom and the lowest point of the natural land surface along the trench length; and
 - j. If the applicant uses correction factors for soil absorption rate under R18-9-A312(D)(3) and minimum vertical separation under R18-9-A312(E), additional wastewater pretreatment is provided.
- E. Installation requirements. In addition to the applicable requirements in R18-9-A313(A), an applicant shall prepare the disposal site when high soil moisture is not present and equipment operations do not create platy soil conditions. The applicant shall:
1. Plow or scarify the fill area to disrupt the vegetative mat while avoiding smearing,
 2. Construct trenches as specified in subsection (D)(3),
 3. Scarify the site and apply part of the cap fill to the fill area and blend the fill with the scarified native soil within the contact layers, and
 4. Follow the construction design specified in the Construction Authorization issued under R18-9-A301(D)(1)(c).
- F. Operation and maintenance requirements. In addition to the applicable requirements in R18-9-A313(B), the permittee shall inspect and repair the cap fill and other surface features as needed to ensure proper disposal function, proper drainage of surface water, and prevention of damaging loads on the cap.

R18-9-E318. 4.18 GENERAL PERMIT: CONSTRUCTED WETLAND, LESS THAN 3000 GALLONS PER DAY DESIGN FLOW

- A. A 4.18 General Permit allows for the use of a constructed wetland receiving wastewater treated to a level equal to or better than that specified in R18-9-E302(B).
1. Definition. "Constructed wetland" means a treatment technology characterized by a lined excavation, filled with a medium for growing plants and planted with marsh vegetation. The treated wastewater flows horizontally through the medium in contact with the aquatic plants.

- a. As the wastewater flows through the wetland system, additional treatment is provided by filtering, settling, volatilization, and evapotranspiration.
 - b. The wetland system allows microorganisms to break down organic material and plants to take up nutrients and other pollutants.
 - c. The wastewater treated by a wetland system is discharged to a subsurface soil disposal system.
- 2. An applicant may use a constructed wetland if further wastewater treatment is needed before disposal.
- B. Performance. An applicant shall ensure that a constructed wetland is designed so that it produces treated wastewater that meets the following criteria:
 - 1. TSS of 20 milligrams per liter, 30-day arithmetic mean;
 - 2. BOD₅ of 20 milligrams per liter, 30-day arithmetic mean;
 - 3. Total nitrogen (as nitrogen) of 45 milligrams per liter, five-month arithmetic mean; and
 - 4. Total coliform level of 100,000 (Log₁₀ 5) colony forming units per 100 milliliters, 95th percentile.
- C. Notice of Intent to Discharge. The applicant shall comply with the Notice of Intent to Discharge requirements specified in R18-9-A301(B) and R18-9-A309(B).
- D. Design, installation, operation, and maintenance requirements. The permittee shall comply with the applicable design, installation, operation, and maintenance requirements in R18-9-A312, R18-9-A313(A), and R18-9-A313(B).
- E. Reference design.
 - 1. An applicant may use a constructed wetland that achieves the performance requirements in subsection (B) by following a reference design on file with the Department.
 - 2. The applicant shall file a form provided by the Department for supplemental information about the proposed constructed wetland with the applicant's submittal of the Notice of Intent to Discharge.

R18-9-E319. 4.19 GENERAL PERMIT: SAND-LINED TRENCH, LESS THAN 3000 GALLONS PER DAY DESIGN FLOW

- A. A 4.19 General Permit allows for the use of a sand-lined trench receiving wastewater treated to a level equal to or better than that specified in R18-9-E302(B).
 - 1. Definition. For purposes of this Section, a "sand lined trench" means a disposal technology characterized by:
 - a. Engineered placement of sand or equivalently graded glass in trenches excavated in native soil,
 - b. Wastewater dispersed throughout the media by pressure distribution technology as specified in R18-9-E304 using a timer-controlled pump in periodic uniform doses that maintain unsaturated flow conditions, and
 - c. Wastewater treated during travel through the media and absorbed into the native soil at the bottom of the trench.
 - 2. An applicant may use a sand lined trench if:
 - a. The native soil is excessively permeable,
 - b. There is little native soil overlying fractured or excessively permeable rock, or
 - c. Reduction in setback distances or minimum vertical separation is desired.
- B. Performance. An applicant shall ensure that a sand lined trench is designed so that treated wastewater released to the native soil meets the following criteria:
 - 1. TSS of 20 milligrams per liter, 30-day arithmetic mean;
 - 2. BOD₅ of 20 milligrams per liter, 30-day arithmetic mean;
 - 3. Total nitrogen (as nitrogen) of 53 milligrams per liter, five-month arithmetic mean; and
 - 4. Total coliform level of 100,000 (Log₁₀ 5) colony forming units per 100 milliliters, 95th percentile.
- C. Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge requirements in R18-9-A301(B) and R18-9-A309(B), an applicant shall submit specifications for the proposed media in the trench.
- D. Design requirements. In addition to the applicable requirements in R18-9-A312, an applicant shall ensure that:
 - 1. The media used in the trench is 1 mineral sand, crushed glass, or cinder sand and that:
 - a. The media conforms to "Standard Specifications for Concrete Aggregates, C33-03," which is incorporated by reference in R18-9-E308(D)(2), "Standard Test Method for Materials Finer than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing, C117-04 (2004)," published by the American Society for Testing and Materials, or an equivalent method approved by the Department. This material is incorporated by reference and does not include any later amendments or editions of the incorporated material. Copies of the incorporated material are available for inspection at the Arizona Department of Environmental Quality, 1110 W. Washington, Phoenix, AZ 85007 or may be obtained from the American Society for Testing and Materials International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959; and
 - b. Sieve analysis complies with the "Standard Test Method for Materials Finer than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing, C11704," which is incorporated by reference in subsection (D)(1)(a), or an equivalent method approved by the Department;
 - 2. Trenches.
 - a. Distribution pipes are capped on the end;
 - b. The spacing between trenches is at least two times the distance between the bottom of the distribution pipe and the bottom of the trench or 5 feet, whichever is greater;

- c. The inlet filter media surface, wastewater distribution pipe, and bottom of the trench are level and the maximum effluent loading rate is not more than 1.0 gallon per day per square foot of sand media inlet surface;
- d. The depth of sand below the gravel layer containing the distribution system is at least 24 inches;
- e. The gravel layer containing the distribution system is 5 to 12 inches thick, at least 36 inches wide, and level;
- f. Permeable geotextile fabric is placed at the base of and along the sides of the gravel layer, as necessary. The applicant shall ensure that:
 - i. Geotextile fabric is placed on top of the gravel layer, and
 - ii. Any cover soil placed on top of the geotextile fabric is capable of maintaining vegetative growth while allowing passage of air;
- g. At least one observation port is installed to the bottom of each sand lined trench;
- h. If the trench is installed in excessively permeable soil or rock, at least 1 foot of loamy sand is placed in the trench below the filter media. The minimum vertical separation distance is measured from the bottom of the loamy sand; and
- i. The trench design is based on the design flow, native soil absorption area at the trench bottom, minimum vertical separation below the trench bottom, design effluent infiltration rate at the top of the sand fill, and the adjusted soil absorption rate for the final effluent quality; and
- 3. The dosing system consists of a timer-controlled pump, electrical components, and distribution network and that:
 - a. Orifice spacing on the distribution piping does not exceed 4 square feet of media infiltrative surface area per orifice, and
 - b. The dosing rate is at least four doses per day and not more than 24 doses per day.
- E. Installation requirements. In addition to the applicable requirements in R18-9-A313(A), an applicant shall ensure that the filter media is placed in the trench to prevent differential settling and promote a uniform density throughout of 1.3 to 1.4 grams per cubic centimeter.
- F. Operation and maintenance requirements. In addition to the applicable requirements in R18-9-A313(B), the permittee shall ensure that:
 - 1. The septic tank filter and pump tank are inspected and cleaned;
 - 2. The dosing tank pump screen, pump switches, and floats are cleaned yearly and any residue is disposed of lawfully; and
 - 3. Lateral lines are flushed and the liquid waste discharged into the treatment system headworks.

R18-9-E320. 4.20 GENERAL PERMIT: DISINFECTION DEVICES, LESS THAN 3000 GALLONS PER DAY DESIGN FLOW

- A. A 4.20 General Permit allows for the use of a disinfection device to reduce the level of harmful organisms in wastewater, provided the wastewater is pretreated to equal or better than the performance criteria in R18-9-E315(B)(1)(a). An applicant may use a disinfection device if:
 - 1. The disinfection device kills the microorganisms by exposing the wastewater to heat, radiation, or a chemical disinfectant.
 - 2. Some means of disinfection is required before discharge.
 - 3. A reduction in harmful microorganisms, as represented by the total coliform level, is needed for surface or near surface disposal of the wastewater or reduction of the minimum vertical separation distance specified in R18-9-A312(E) is desired.
- B. Restrictions.
 - 1. Unless the disinfection device is designed to operate without electricity, an applicant shall not install the device if electricity is not permanently available at the site.
 - 2. The 4.20 General Permit does not authorize a disinfection device that releases chemical disinfectants or disinfection byproducts harmful to plants or wildlife in the discharge area or causes a violation of an Aquifer Water Quality Standard.
- C. Performance. An applicant shall ensure that:
 - 1. A fail-safe wastewater control or operational process is incorporated to prevent a release of inadequately treated wastewater;
 - 2. The performance of a disinfection device meets the level of disinfection needed for the type of disposal and produces effluent that:
 - a. Is nominally free of coliform bacteria;
 - b. Is clear and odorless, and
 - c. Has a dissolved oxygen content of at least 6 milligrams per liter;
- D. Design requirements. An applicant shall ensure that an on-site wastewater treatment facility with a disposal works designed to discharge to the land surface includes disinfection technology that conforms with the following requirements:
 - 1. Chlorine disinfection.
 - a. Available chlorine is maintained as indicated in the following table:

pH of Wastewater (s.u.)	Required Concentration of Available Chlorine in Wastewater (mg/L)	
	Wastewater to the Disinfection Device Meets a TSS of 30 mg/L and BOD ₅ of 30 mg/L	Wastewater to the Disinfection Device Meets a TSS of 20 mg/L and BOD ₅ of 20 mg/L
6	15 – 30	6 – 10
7	20 – 35	10 – 20
8	30 – 45	20 – 35

- b. The minimum chlorine contact time is 15 minutes for wastewater at 70°F and 30 minutes for wastewater at 50°F, based on a flow equal to four times the daily design flow;
 2. Contact chambers are watertight and made of plastic, fiberglass, or other durable material and are configured to prevent short-circuiting; and
 3. For a device that disinfects by another method other than chlorine disinfection, dose and contact time are determined to reliably produce treated wastewater that is nominally free of coliform bacteria, based on a flow equal to four times the daily design flow.
- E. Operation and maintenance. A permittee shall ensure that:
1. If the disinfection device relies on the addition of chemicals for disinfection, the device is operated to minimize the discharge of disinfection chemicals while achieving the required level of disinfection; and
 2. The disinfection device is inspected and maintained at least once every three months by a qualified person.

R18-9-E321. 4.21 GENERAL PERMIT: SURFACE DISPOSAL, LESS THAN 3000 GALLONS PER DAY DESIGN FLOW

- A. A 4.21 General Permit allows for surface application of treated wastewater that is nominally free of coliform bacteria produced by the treatment works of an on-site wastewater treatment facility.
- B. Performance. An applicant shall ensure that the treated wastewater distributed for surface application meets the following criteria:
 1. TSS of 30 milligrams per liter, 30-day arithmetic mean;
 2. BOD₅ of 30 milligrams per liter, 30-day arithmetic mean;
 3. Total nitrogen (as nitrogen) of 53 milligrams per liter, five-month arithmetic mean;
 4. Is nominally free of total coliform bacteria as indicated by a total coliform level of Log₁₀ 0 colony forming units per 100 milliliters, 95th percentile.
- C. Restrictions. The applicant shall not install the disposal works if weather records indicate that:
 1. Average minimum temperature in any month is 20°F or less, or
 2. Over 1/3 of the average annual precipitation falls in a 30-day period.
- D. Design requirements. An applicant shall ensure that:
 1. The land surface application rate does not exceed the lowest application rate as determined under R18-9-A312(D) minus no greater than 50 percent of the evapotranspiration that may occur during the month with the least evapotranspiration in any soil zone within the top 5 feet of soil;
 2. The design incorporates sprinklers, bubbler heads, or other dispersal components that optimize wastewater loading rates and prevent ponding on the land surface;
 3. The design specifies containment berms:
 - a. Compacted to a minimum of 95 percent Proctor;
 - b. Designed to contain the runoff of the 10-year, 24-hour storm event in addition to the daily design flow; and
 - c. Designed to remain intact in the event of a more severe rainfall event; and
 4. The design incorporates placement of signage on hose bibs, human ingress points to the surface disposal area, and at intervals around the perimeter of the surface disposal area to provide notification of use of treated wastewater and a warning against ingestion.
- E. Installation requirements. An applicant shall ensure that installation of the wastewater dispersal components conforms to manufacturer's specifications that do not conflict with this Article and to the design documents specified in the Construction Authorization issued under R18-9-A301(D)(1)(c).
- F. Operation and maintenance. In addition to the requirements specified in R18-9-A313(B), the permittee shall operate and maintain the surface disposal works to:
 1. Prevent treated wastewater from coming into contact with drinking fountains, water coolers, or eating areas;
 2. Contain all treated wastewater within the bermed area; and
 3. Ensure that hose bibs discharging treated wastewater are secured to prevent use by the public.

R18-9-E322. 4.22 GENERAL PERMIT: SUBSURFACE DRIP IRRIGATION DISPOSAL, LESS THAN 3000 GALLONS PER DAY DESIGN FLOW

- A. A 4.22 General Permit allows for the construction and use of a subsurface drip irrigation disposal works that receives high quality wastewater from an on-site wastewater treatment facility to dispense the wastewater to an irrigation system that is buried at a shallow depth in native soil. A 4.22 General Permit includes a pressure distribution system under R18-9-E304.
1. The subsurface drip irrigation disposal works is designed to disperse the treated wastewater into the soil under unsaturated conditions by pressure distribution and timed dosing. The applicant shall ensure that the pressure distribution system meets the requirements specified in R18-9-E304, and the Department shall consider whether the requirements of R18-9-E304 are met when processing the application under R18-9-A301(B).
 2. A subsurface drip irrigation disposal works reduces the downward percolation of wastewater by enhancing evapotranspiration to the atmosphere.
 3. An applicant may use a subsurface drip irrigation disposal works to overcome site constraints, such as high groundwater, shallow soils, slowly permeable soils, or highly permeable soils, or if water conservation is needed.
 4. The subsurface drip irrigation disposal works includes pipe, pressurization and dosing components, controls, and appurtenances to reliably deliver treated wastewater to driplines using supply and return manifold lines.
- B. Performance. An applicant shall ensure that:
1. Treated wastewater that meets the following criteria is delivered to a subsurface drip irrigation disposal works:
 - a. Performance Category A.
 - i. TSS of 20 milligrams per liter, 30-day arithmetic mean;
 - ii. BOD₅ of 20 milligrams per liter, 30-day arithmetic mean;
 - iii. Total nitrogen (as nitrogen) of 53 milligrams per liter, five-month arithmetic mean; and
 - iv. Total coliform level of one colony forming unit per 100 milliliters, 95th percentile; or
 - b. Performance Category B.
 - i. TSS of 30 milligrams per liter, 30-day arithmetic mean;
 - ii. BOD₅ of 30 milligrams per liter, 30-day arithmetic mean;
 - iii. Total nitrogen (as nitrogen) of 53 milligrams per liter, five-month arithmetic mean; and
 - iv. Total coliform level of 300,000 (Log₁₀ 5.5) colony forming units per 100 milliliters, 95th percentile; and
 2. The subsurface drip irrigation works is designed to meet the following performance criteria:
 - a. Prevention of ponding on the land surface, and
 - b. Incorporation of a fail-safe wastewater control or operational process to prevent inadequately treated wastewater from being discharged.
- C. Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge requirements in R18-9-A301(B), R18-9-A309(B), and R18-9-E304, the applicant shall submit:
1. Documentation of the pretreatment method proposed to achieve the wastewater criteria specified in subsection (B)(1), such as the type of pretreatment system and the manufacturer's warranty;
 2. Initial filter and drip irrigation flushing settings;
 3. Site evapotranspiration calculations if used to reduce the size of the disposal works; and
 4. If supplemental irrigation water is introduced to the subsurface drip irrigation disposal works, an identification of the cross-connection controls, backflow controls, and supplemental water sources.
- D. Design requirements. In addition to the applicable design requirements specified in R18-9-A312, an applicant shall ensure that:
1. The design requirements of R18-9-E304 are followed, except that:
 - a. The requirement for quick disconnects in R18-9-E304(D)(1)(c) is not applicable, and
 - b. The applicant may provide the reserve volume specified in R18-9-E304(D)(3)(a)(iv) in an oversized treatment tank or a supplemental storage tank;
 2. Drip irrigation components and appurtenances are properly placed.
 - a. Performance category A subsurface drip irrigation disposal works. The applicant shall ensure that:
 - i. Driplines and emitters are placed to prevent ponding on the land surface, and
 - ii. Cover material and placement depth follow manufacturer's requirements to prevent physical damage or ultraviolet degradation of components and appurtenances; or
 - b. Performance category B subsurface drip irrigation disposal works. The applicant shall ensure that:
 - i. Driplines and emitters are placed at least 6 inches below the surface of the native soil;
 - ii. A cover of soil or engineered fill is placed on the surface of the native soil to achieve a total emitter burial depth of at least 12 inches;
 - iii. Cover material and placement depth follow manufacturer's requirements to prevent physical damage or ultraviolet degradation of components and appurtenances; and
 - iv. The drip irrigation disposal works is not used for irrigating food crops;
 3. Wastewater is filtered upstream of the dripline emitters to remove particles 100 microns in size and larger;
 4. A pressure regulator is provided to limit the pressure of wastewater in the drip irrigation disposal works;
 5. Wastewater pipe meets the approved pressure rating in "Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120, D1785-04a (2004)," or "Standard Specification for Chlorinated Poly

- (Vinyl Chloride) (CPVC) Plastic Pipe, Schedules 40 and 80, F441/F441M-02 (2002),” published by the American Society for Testing and Materials. This material is incorporated by reference and does not include any later amendments or editions of the incorporated material. Copies of the incorporated material are available for inspection at the Arizona Department of Environmental Quality, 1110 W. Washington, Phoenix, AZ 85007 or may be obtained from the American Society for Testing and Materials International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959;
6. The system design flushes the subsurface drip irrigation disposal works components with wastewater at a minimum velocity of 2 feet per second, unless the manufacturer’s manual and warranty specify another flushing practice. The applicant shall ensure that piping and appurtenances allow the wastewater to be pumped in a line flushing mode of operation with discharge returned to the treatment system headworks;
 7. Air vacuum release valves are installed to prevent water and soil drawback into the emitters;
 8. Driplines.
 - a. Driplines are placed from 12 to 24 inches apart unless other configurations are allowed by the manufacturer’s specifications;
 - b. Dripline installation and design requirements, including the allowable deflection, follow manufacturer’s requirements;
 - c. The maximum length of a single dripline follows manufacturer’s specifications to provide even distribution;
 - d. The dripline incorporates a herbicide to prevent root intrusion for at least 10 years;
 - e. The dripline incorporates a bactericide to reduce bacterial slime buildup;
 - f. Disinfection does not reduce the life of the bactericide or herbicide in the dripline;
 - g. Any return flow from a drip irrigation disposal works to the treatment works does not impair the treatment performance; and
 - h. When dripline installation is under subsection (E)(1)(b) or (c), backfill consists of the excavated soil or similar soil obtained from the site that is screened for removal of debris and rock larger than 1/2-inch;
 9. Emitters.
 - a. Emitters are spaced no more than 2 feet apart, and
 - b. Emitters are designed to discharge from 0.5 to 1.5 gallons per hour;
 10. A suitable backflow prevention system is installed if supplemental water for irrigation is introduced to the pumping system. The applicant shall not introduce supplemental water to the treatment works;
 11. The drip irrigation disposal works is installed in soils classified as:
 - a. Sandy clay loam, clay loam, silty clay loam, or finer with weak platy structure or in soil with a percolation rate from 45 to 120 minutes per inch;
 - b. Sandy clay loam, clay loam, silty clay loam, or silt loam with massive structure or in soil with a percolation rate from 31 to 120 minutes per inch; and
 - c. Other soils if an appropriate site-specific SAR is determined;
 12. The minimum vertical separation distances are 1/2 of those specified in R18-9-A312(E)(2) if the design evapotranspiration rate during the wettest 30-day period of the year is 50 percent or more of design flow, except that the applicant shall not use a minimum vertical separation distance less than 1 foot;
 13. In areas where freezing occurs, the irrigation system is protected as recommended by the manufacturer;
 14. If drip irrigation components are used for a disposal works using a shaded trench constructed in native soil, the following requirements are met:
 - a. The trench is between 12 and 24 inches wide;
 - b. The trench bottom is between 12 and 30 inches below the original grade of native soil and level to within 2 inches per 100 feet of length;
 - c. Two driplines are positioned in the bottom of the trench, not more than 4 inches from each sidewall;
 - d. The trench with the positioned driplines is filled to a depth of 6 to 10 inches with decomposed granite or C-33 sand or a mixture of both, with mixture composition, if applicable, and placement specified on the construction drawing;
 - e. A minimum of 8 inches of backfill is placed over the decomposed granite or C-33 sand fill to an elevation of 1 to 3 inches above the native soil finished grade;
 - f. Observation ports are placed at both ends of each shaded trench to confirm the saturated wastewater level during operation; and
 - g. A separation distance of 24 inches or more is maintained between the nearest sidewall of an adjacent trench; and
 15. The soil absorption area used for design of a drip irrigation works is calculated using:
 - a. For a design that uses the shaded trench method described in subsection (D)(14), the bottom and sidewall area of the shaded trench not more than 4 square feet per linear foot of trench; or
 - b. For all other designs, the number of emitters times an area for each emitter where the emitter area is a square centered on each emitter with the side dimension equal to the emitter separation distance selected by the designer in accordance with R18-9-E322(D)(9)(a), excluding all areas of overlap of adjacent squares.

- E. Installation requirements. In addition to the applicable requirements in R18-9-A313(A) and R18-9-E304, the applicant shall ensure that:
1. The dripline is installed by:
 - a. A plow mechanism that cuts a furrow, dispenses pipe, and covers the dripline in one operation;
 - b. A trencher that digs a trench 4 inches wide or less;
 - c. Digging the trench with hand tools to minimize trench width and disruption to the native soil; or
 - d. Without trenching, removing surface vegetation, scarifying the soil parallel with the contours of the land surface, placing the pipe grid, and covering with fill material, unless prohibited in subsection (D)(2)(b)(ii);
 2. Drip irrigation pipe is stored to preserve the herbicidal and bactericidal characteristics of the pipe;
 3. Pipe deflection conforms to the manufacturer's requirements and installation is completed without kinking to prevent flow restriction;
 4. A shaded trench drip irrigation disposal works is installed as specified in the design documents used for the Construction Authorization; and
 5. The pressure piping and electrical equipment are installed according to the Construction Authorization in R18-9-A301(D)(1)(c) and any local building codes.
- F. Operation and maintenance requirements. In addition to the applicable requirements in R18-9-A313 (B) and R18-9-E304, the permittee shall:
1. Test any fail-safe wastewater control or operational process quarterly to ensure proper operation to prevent discharge of inadequately treated wastewater, and
 2. Maintain the herbicidal and bacteriological capability of the drip irrigation disposal works.

R18-9-E323. 4.23 GENERAL PERMIT: 3000 TO LESS THAN 24,000 GALLONS PER DAY DESIGN FLOW

- A. A 4.23 General Permit allows for the construction and use of an on-site wastewater treatment facility with a design flow from 3000 gallons per day to less than 24,000 gallons per day or more than one on-site wastewater treatment facility on a property or on adjacent properties under common ownership with an combined design flow from 3000 to less than 24,000 gallons per day if all of the following apply:
1. Except as specified in subsection (A)(3), the treatment and disposal works consists of technologies or designs that are covered under other general permits, but are sized larger to accommodate increased flows;
 2. The on-site wastewater treatment facility complies with all applicable requirements of Articles 1, 2, and 3 of this Chapter;
 3. The facility is not a system or a technology covered by one of the following general permits available for a design flow of less than 3000 gallons per day:
 - a. An aerobic system with subsurface or surface disposal described in R18-9-E315;
 - b. A disinfection device described in R18-9-E320; or
 - c. A seepage pit or pits described in R18-9-E302; and
 4. The discharge of total nitrogen to groundwater is controlled.
 - a. An applicant shall:
 - i. Demonstrate that the nitrogen loading calculated over the property served by the on-site wastewater treatment facility, including streets, common areas, and other non-contributing areas, is not more than 0.088 pounds (39.9 grams) of total nitrogen per day per acre calculated at a horizontal plane immediately beneath the zone of active treatment of the on-site wastewater treatment facility including its disposal field; or
 - ii. Justify a nitrogen loading that is equally protective of aquifer water quality as the nitrogen loading specified in subsection (A)(4)(a)(i) based on site-specific hydrogeological or other factors.
 - b. For purposes of the demonstration in subsection (A)(4)(a)(i), the applicant may assume that 0.0333 pounds (15.0 grams) of total nitrogen per day per person is contributed to raw sewage and may determine the nitrogen concentration in the treated wastewater at a horizontal plane immediately beneath the zone of active treatment of the on-site wastewater treatment facility including its disposal field.
- B. Notice of Intent to Discharge. In addition to the Notice of Intent to Discharge requirements specified in R18-9-A301(B) and R18-9-A309(B), an applicant shall submit:
1. A performance assurance plan consisting of tasks, schedules, and estimated annual costs for operating, maintaining, and monitoring performance over a 20-year operational life;
 2. Design documents and the performance assurance plan, signed, dated, and sealed by an Arizona-registered professional engineer;
 3. Any documentation submitted under the alternative design procedure in R18-9-A312(G) that pertains to achievement of better performance levels than those specified in the general permit for the corresponding facility with a design flow of less than 3000 gallons per day, or for any other alternative design, construction, or operational change proposed by the applicant; and
 4. A demonstration of total nitrogen discharge control specified in subsection (A)(4).
- C. Design requirements. The applicant shall comply with the applicable requirements in R18-9-A312 and the applicable general permits for the treatment works and disposal works used in the design of the on-site wastewater treatment facility.

- D. Installation requirements. The applicant shall comply with the applicable requirements in R18-9-A313(A) and the applicable general permits for the treatment works and disposal works used in the design of the on-site wastewater treatment facility.
- E. Operation and maintenance requirements. The applicant shall comply with the applicable requirements in R18-9-A313(B) and the applicable general permits for the treatment works and disposal works used in the design of the on-site wastewater treatment facility.
- F. Additional Discharge Authorization requirements. In addition to any other requirements, the applicant shall submit the following information before the Discharge Authorization is issued.
1. A signed, dated, and sealed Engineer's Certificate of Completion in a format approved by the Department affirming that:
 - a. The project was completed in compliance with the requirements of this Section and as described in the plans and specifications, or
 - b. Any changes are reflected in as-built plans submitted with the Engineer's Certificate of Completion.
 2. The name of the service provider or certified operator that is responsible for implementing the performance assurance plan.
- G. Reporting requirement. The permittee shall provide the Department with the following information on the anniversary date of the Discharge Authorization:
1. A form signed by the certified operator or service provider that:
 - a. Provides any data or documentation required by the performance assurance plan,
 - b. Certifies compliance with the requirements of the performance assurance plan, and
 - c. Describes any additions to the facility during the year that increased flows and certifies that the flow did not exceed 24,000 gallons per day during any day; and
 2. Any applicable fee required by 18 A.A.C. 14.
- H. Facility expansion. If an expansion of an on-site wastewater treatment facility operating under this Section involves the installation of a separate on-site wastewater treatment facility on the property with a design flow of less than 3000 gallons per day, the applicant shall submit the applicable Notice of Intent to Discharge and fee required under 18 A.A.C. 14 for the separate on-site wastewater treatment facility.
1. The applicant shall indicate in the Notice of Intent to Discharge the Department's file number and the issuance date of the Discharge Authorization previously issued by the Director under this Section for the property.
 2. Upon satisfactory review, the Director shall reissue the Discharge Authorization for this Section, with the new issuance date and updated information reflecting the expansion.
 3. If the expansion causes the accumulative design flow from on-site wastewater treatment facilities on the property to equal or exceed 24,000 gallons per day, the Director shall not reissue the Discharge Authorization, but shall require the applicant to submit an application for an individual permit addressing all proposed and operating facilities on the property.

Table 1. Unit Design Flows

Wastewater Source	Applicable Unit	Sewage Design Flow per Applicable Unit, Gallons Per Day
Airport	Passenger (average daily number) Employee	4 15
Auto Wash	Facility	Per manufacturer, if consistent with this Chapter
Bar/Lounge	Seat	30
Barber Shop	Chair	35
Beauty Parlor	Chair	100
Bowling Alley (snack bar only)	Lane	75
Camp	Camping unit	30
Day camp, no cooking facilities	Camping unit	75
Campground, overnight, flush toilets	Camping unit	150
Campground, overnight, flush toilets and shower	Person	100-150
Campground, luxury	Person	50
Camp, youth, summer, or seasonal		
Church		
Without kitchen	Person (maximum attendance)	5
With kitchen	Person (maximum attendance)	7

Country Club	Resident Member Nonresident Member	100 10
Dance Hall	Patron	5
Dental Office	Chair	500
Dog Kennel	Animal, maximum occupancy	15
Dwelling For determining design flow for sewage treatment facilities under R18-9-B202(A)(9)(a) and sewage collection systems under R18-9-E301(D) and R18-9-B301(K), excluding peaking factor.	Person	80
Dwelling For on-site wastewater treatment facilities per R18-9-E302 through R18-9-E323: Apartment Building 1 bedroom 2 bedroom 3 bedroom 4 bedroom Seasonal or Summer Dwelling (with recorded seasonal occupancy restriction) Single Family Dwellings Other than Single Family Dwelling,, the greater flow value based on: Bedroom count 1-2 bedrooms Each bedroom over 2 Fixture count	Apartment Apartment Apartment Apartment Resident see R18-9-A314(D)(1) Bedroom Bedroom Fixture unit	200 300 400 500 100 see R18-9-A314(D)(1) 300 150 25
Fire Station	Employee	45
Hospital All flows Kitchen waste only Laundry waste only	Bed Bed Bed	250 25 40
Hotel/motel Without kitchen With kitchen	Bed (2 person) Bed (2 person)	50 60
Industrial facility Without showers With showers Cafeteria, add	Employee Employee Employee	25 35 5
Institutions Resident Nursing home Rest home	Person Person Person	75 125 125
Laundry Self service Commercial	Wash cycle Washing machine	50 Per manufacturer, if consistent with this Chapter
Office Building	Employee	20

Park (temporary use)		
Picnic, with showers, flush toilets	Parking space	40
Picnic, with flush toilets only	Parking space	20
Recreational vehicle, no water or sewer connections	Vehicle space	75
Recreational vehicle, with water and sewer connections	Vehicle space	100
Mobile home/Trailer	Space	250
Restaurant/Cafeteria	Employee	20
With toilet, add	Customer	7
Kitchen waste, add	Meal	6
Garbage disposal, add	Meal	1
Cocktail lounge, add	Customer	2
Kitchen waste disposal service, add	Meal	2
Restroom, public	Toilet	200
School		
Staff and office	Person	20
Elementary, add	Student	15
Middle and High, add	Student	20
with gym & showers, add	Student	5
with cafeteria, add	Student	3
Boarding, total flow	Person	100
Service Station with toilets	First bay	1000
	Each additional bay	500
Shopping Center, no food or laundry	Square foot of retail space	0.1
Store	Employee	20
Public restroom, add	Square foot of retail space	0.1
Swimming Pool, Public	Person	10
Theater		
Indoor	Seat	5
Drive-in	Car space	10

Note: Unit flow rates published in standard texts, literature sources, or relevant area or regional studies are considered by the Department, if appropriate to the project.

ARTICLE 4. NITROGEN MANAGEMENT GENERAL PERMITS

R18-9-401. DEFINITIONS

In addition to the definitions established in A.R.S. §§ 49-101 and 49-201 and A.A.C. R18-9-101, the following terms apply to this Article:

1. “Application of nitrogen fertilizer” means any use of a substance containing nitrogen for the commercial production of a crop or plant. The commercial production of a crop or plant includes commercial sod farms and nurseries.
2. “Contact stormwater” means stormwater that comes in contact with animals or animal wastes within a concentrated animal feeding operation.
3. “Crop or plant needs” means the amount of water and nitrogen required to meet the physiological demands of a crop or plant to achieve a defined yield.
4. “Crop or plant uptake” means the amount of water and nitrogen that can be physiologically absorbed by the roots and vegetative parts of a crop or plant following the application of water.
5. “Impoundment” means any structure, other than a tank or a sump, designed and maintained to contain liquids. A structure that stores or impounds only non-contact stormwater is not an impoundment under this Article.
6. “Liner” or “lining system” means any natural, amendment, or synthetic material used to reduce seepage of impounded liquids into a vadose zone or aquifer.
7. “NRCS guidelines” means the United States Department of Agriculture, Natural Resources Conservation Service, National Engineering Handbook, Part 651 Agricultural Waste Management Field Handbook, Chapter 10, 651.1080, Appendix 10D – Geotechnical, Design, and Construction Guideline (November 1997). This material is incorporated by reference and does not include any later amendments or editions of the incorporated material. Copies of the incorporated material are available for inspection at the Arizona Department of Environmental Quality, 1110 W. Washington, Phoenix, AZ 85007 or may be obtained from the United States Department of Agriculture, Natural Resources Conservation Service at <ftp://ftp.wcc.nrcs.usda.gov/downloads/wastemgmt/AWMFH/awmfh-chap10-app10d.pdf>.

R18-9-402. NITROGEN MANAGEMENT GENERAL PERMITS: NITROGEN FERTILIZERS

An owner or operator may apply a nitrogen fertilizer under this general permit without submitting a notice to the Director, if the owner or operator complies with the following best management practices:

1. Limit application of the fertilizer so that it meets projected crop or plant needs;
2. Time application of the fertilizer to coincide to maximum crop or plant uptake;
3. Apply the fertilizer by a method designed to deliver nitrogen to the area of maximum crop or plant uptake;
4. Manage and time application of irrigation water to minimize nitrogen loss by leaching and runoff; and
5. Use tillage practices that maximize water and nitrogen uptake by a crop or plant.

R18-9-403. NITROGEN MANAGEMENT GENERAL PERMITS: CONCENTRATED ANIMAL FEEDING OPERATIONS

A. An owner or operator may discharge from a concentrated animal feeding operation without submitting a notice to the Director, if the owner or operator complies with the following best management practices:

1. Harvest, stockpile, and dispose of animal manure from a concentrated animal feeding operation to minimize discharge of any nitrogen pollutant by leaching and runoff;
2. Control and dispose of nitrogen-contaminated water resulting from an activity associated with a concentrated animal feeding operation, up to a 25-year, 24-hour storm event equivalent, to minimize the discharge of any nitrogen pollutant;
3. Following the requirements in subsection (B), construct and maintain a lining for an impoundment, used to contain process wastewater or contact stormwater from a concentrated animal feeding operation to minimize the discharge of any nitrogen pollutant; and
4. Close a facility in a manner that will minimize the discharge of any nitrogen pollutant. If a liner was used in an impoundment:
 - a. Remove liquids and any solid residue on the liner and dispose appropriately;
 - b. Inspect any synthetic liner for evidence of holes, tears, or defective seams that could have leaked. If evidence of leakage is discovered:
 - i. Remove the liner in the area of suspected leakage,
 - ii. Sample potentially impacted soil, and
 - iii. Properly dispose of impacted soil or restore to background nitrogen levels;
 - c. Cover the liner in place or remove it for disposal or reuse if the impoundment is an excavated impoundment,
 - d. Remove and dispose of the liner elsewhere if the impoundment is bermed;
 - e. Grade the facility to prevent the impoundment of water; and

- f. Notify the Department within 60 days following closure.
- B. Lining requirements for concentrated animal feeding operation impoundments.
 1. New impoundments. The owner or operator shall:
 - a. Follow the NRCS guidelines for any newly constructed impoundment or an impoundment first used after [effective date of the rule], and
 - b. Use a coefficient of permeability of 1×10^{-7} centimeters per second or less as acceptable liner performance. The owner or operator may include up to 1 order of magnitude reduction in permeability from manure sealing in impoundments that hold wastes having manure as a significant component.
 2. Impoundments already in use.
 - a. The owner or operator shall maintain the existing seal for any impoundment first used before [the effective date of the rule].
 - b. If any of the following conditions exist at a concentrated animal feeding operation, the Director shall send a notice requiring the owner or operator to reassess the performance of the lining system:
 - i. The concentrated animal feeding operation is located within a Nitrogen Management Area designated under A.A.C. R18-9-A317; or
 - ii. Existing conditions or trends in nitrogen loading to an aquifer will cause or contribute to an exceedance of an Aquifer Water Quality Standard for a nitrogen pollutant at the point of compliance determined under A.R.S. § 49-244, based on the following information:
 - (1) Existing contamination of groundwater by nitrogen species;
 - (2) Existing and potential impact to groundwater by sources of nitrogen other than the concentrated animal feeding operation;
 - (3) Characteristics of the soil surface, vadose zone, and aquifer;
 - (4) Depth to groundwater;
 - (5) The estimated operational life of the impoundment;
 - (6) Location and characteristics of existing and potential drinking water supplies;
 - (7) Construction material and design of existing impoundment structure; and
 - (8) Any other information relevant to determining the severity of actual or potential nitrogen impact on the aquifer.
 - c. The owner or operator shall, within 90 days of the Director's notice, submit either:
 - i. A report to the Department demonstrating consistency with NRCS guidelines and the acceptable liner performance criteria established in subsection (B)(1)(b); or
 - ii. Plans and a schedule to upgrade the liner for the impoundment to meet the NRCS guidelines and the acceptable liner performance criteria in subsection (B)(1)(b). The Director may provide additional time for the submittal of the plans and a schedule for upgrade, if the owner or operator demonstrates that technical or financial assistance to develop the plans is needed.
 - d. Preliminary decision.
 - i. Within 90 days from the date of receipt, the Director shall review the report or the plans submitted under subsection (B)(2)(c) and provide to the owner or operator a preliminary decision on the submittal.
 - ii. The owner or operator may, within 30 days of the preliminary decision, submit written comments and supporting information to the Director on the preliminary decision.
 - iii. The Director shall evaluate any comments on the preliminary decision and supporting information and, within 90 days of receipt of the comments and information, make a final decision.
 - e. Final decision.
 - i. If the Director determines that the owner or operator has demonstrated that the lining system meets NRCS guidelines and the acceptable performance criteria in subsection (B)(1)(b), no additional action is necessary.
 - ii. If the Director approves the plans and schedules under subsection (B)(2)(c)(ii), the owner or operator shall implement the plans within the time-frame specified in the approved schedule.
 - iii. If the Director determines that the owner or operator failed to demonstrate that the lining system meets NRCS guidelines and the acceptable performance criteria in subsection (B)(1)(b) or that the schedule to upgrade the lining is not acceptable, the owner or operator shall upgrade the lining system within a time-frame specified by the Director.
 - iv. The owner or operator may appeal the Director's decision under A.R.S. Title 41, Chapter 6, Article 10.
 3. Notification requirement. The owner or operator of any lined impoundment shall either:
 - a. Notify the Department of the type of liner that was used to line each impoundment by February 19 of each year following either:
 - i. The first use of an impoundment not used before [effective date of the rule]; or
 - ii. Completion of a liner upgrade required under this Section for an impoundment used before [effective date of the rule]; or
 - b. Include the information required in subsections (B)(3)(a)(i) and (ii) in the next annual report submitted for

the AZPDES Concentrated Animal Feeding Operation General Permit, issued under 18 A.A.C. 9, Article 9, Part C.

R18-9-404. REVOCATION OF COVERAGE UNDER A NITROGEN MANAGEMENT GENERAL PERMIT

- A. The Director may revoke coverage under a nitrogen management general permit and require the permittee to obtain an individual permit under 18 A.A.C. 9, Article 2, if the Director determines that the permittee failed to comply with the best management practices under R18-9-403.
- B. Notification.
 - 1. If coverage under the nitrogen management general permit is revoked under subsection (A), the Director shall notify the permittee by certified mail of the decision according to the notification and hearing procedures in A.R.S. Title 41, Chapter 6, Article 10. The notification shall include:
 - a. A brief statement of the reason for the decision,
 - b. The effective revocation date of the general permit coverage, and
 - c. A statement of whether the discharge shall cease immediately or whether the discharge may continue until the individual permit is issued, and
 - 2. If the Director requires a person to obtain an individual permit, the notification shall include:
 - a. An individual permit application form, and
 - b. A deadline between 90 and 180 days after receipt of the notification for filing the application.
- C. When the Director issues an individual permit to an owner or operator of a facility covered under a nitrogen management general permit, the coverage under the nitrogen management general permit is superseded by the individual permit allowing the discharge.